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COMPUTERWORLD

NO ROOM AT THE TOP

When the CIO becomes expendable

BY CLINTON WILDER
CW STAFF

Just a few years after the dawn of the powerful chief information officer, a growing number of companies are eliminating CIO-level jobs and distributing information systems management authority to the front lines of their business units.

The moves reflect a new emphasis on chopping corporate staff to save overhead costs and increase responsiveness to unprecedented competitive pressures. Centralized IS power and IS staffs are being dispersed or eliminated as corporate America retrenches and recasts itself during a protracted recession.

In those companies, "corporate IS as we know it kind of disappears," said Gordon Phillips, managing associate at CSC Index, Inc., s Cambridge, Mass.-based IS consultancy. "The days of kingdoms are over. You will never see 90% of the IS budget at corporate again."

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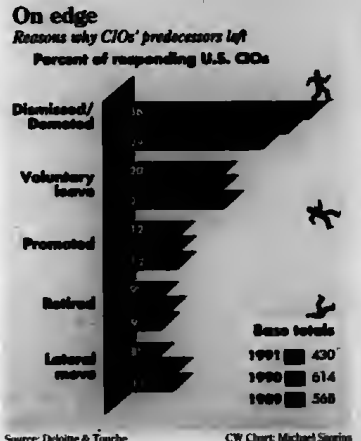


IBM eyes software upgrade campaign

BY JOHANNA AMBROSIO
CW STAFF

NEW YORK — IBM may begin to limit technical support to the two or three most recent releases of mainframe software in an sttempt to push customers toward adopting the current generation of products, an IBM executive said last week.

User reaction to the plan, even at those shops that rely on older software releases to save money or for some other reason, was generally positive. Analysts said the users who may be the most squeamish about the idea are the smaller shops because the very large shops are generally current.

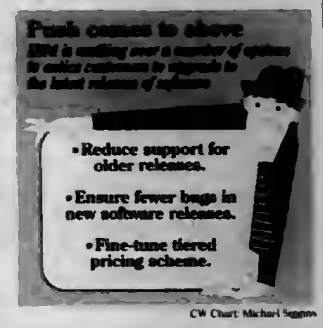
Marty Clague, assistant general manager of marketing for IBM's Enterprise Systems line of business, said the company is looking to "shrink the support window for hardware and software" to "encourage" customers to buy the latest IBM wares.

Clague made his comments during last week's briefing about IBM's new processors (see story page 8). Although be would not specify what actions IBM will take or when this might happen, he said that supporting old products is costly for both users and IBM, and it does not allow customers to "take full advantage" of the newest features.

Approximately 50% of MVS users have the most recent release, while only 20% of VSE users do, according to IBM. The rest have software that can be anywhere from three to five generations old — or older. This creates a large overhead cost for IBM.

"We maintain in our laboratories the different versions of everything we support, with asso-

Continued on page 8



LAN security marching to smart hubs

3Com, Ungermann-Bass unveil tools at Networld; Cabletron on deck

BY JOANIE M. WEXLER
CW STAFF

BOSTON — Smart-hub vendors have begun to attack the growing vulnerability of information traveling across LANs.

Hub vendors 3Com Corp. and Ungermann-Bass, Inc. used the Networld '92 show here last week to introduce different approaches to embedding security in 10Base-T networks wired through their hubs.

Market leader Cabletron Systems, Inc. said it will follow suit within a year, by which time, analysts agreed, hub security features will be a mainstream check-off item.

Likely candidates

Hubs are likely homes for security because they are becoming the focal point of network management and, unlike local-area network servers, are generally situated in protected locations.

"The hub is also the first electronic line of contact with an end user's workstation," said Neville Pereira, supervisor of Ontario Hydro Research Division's integrated computing environment in Toronto, s major user of hubs. "Managing that piece and implementing security on an individual port basis is a good approach."

LAN security is an area of growing concern because once-airtight corporate information in the data center now gets distributed willy-nilly across LANs. A Business Research Group survey of 400 large companies last summer showed security as the "runaway network management issue for the next two years," followed by performance management, said Kevin O'Neill,

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Sun dons pinstripes for corporate user pitch

BY MARYFRAN JOHNSON
CW STAFF

CHICAGO — Sun Microsystems, Inc. rarely misses a chance these days to pump up its presence in corporate computing, and the Sun Open Systems Expo opening here this week will be no exception.

While the conference sessions may read like excerpts from the Unix techie's bible, the keynote will zero in on Unix in the commercial marketplace. Underscoring the show's theme is Sun's quest to expand its user profile beyond the scientific and engineering community.

"Sun really wants to project this image intensively over the next few months that they are viable in the data center," said John Morrell, an analyst at International Data Corp. in Framingham, Mass. "They want to project a service and support image that says they're ready to sell to these people."

Yet the one area in which Sun still gets low marks from some commercial users is service, support and sales-force expertise, Morrell added. In a December 1991 workstation survey of 100 customer sites conducted by IDC, Sun shined brightly against its competitors in every category except service and support. When ranked on a 1-to-10 scale against other major vendors such as IBM, Hewlett-Packard Co. and Digital Equipment Corp., Sun had the lowest score for service, with 7.1.

At Banks of Mid-America, Inc. in Oklahoma City and Tulsa, Okla., support problems are the only significant gripe about Sun, said Susan Cravens, senior

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> *"We are very pleased with our Sun workstations, but [HP] is really outdistancing them when it comes to dealing with commercial customers."*
>
> Susan Cravens
> Banks of Mid-America

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IBM to update midrange with new AS/400s. Page 8.

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"A computer has got to be as easy to use as a calculator or a telephone. It's got to be nonthreatening for the technology to be widely used."

GIL DELISO
SHARP'S WIZARD DIVISION

On wider acceptance of handheld devices. See story page 10.

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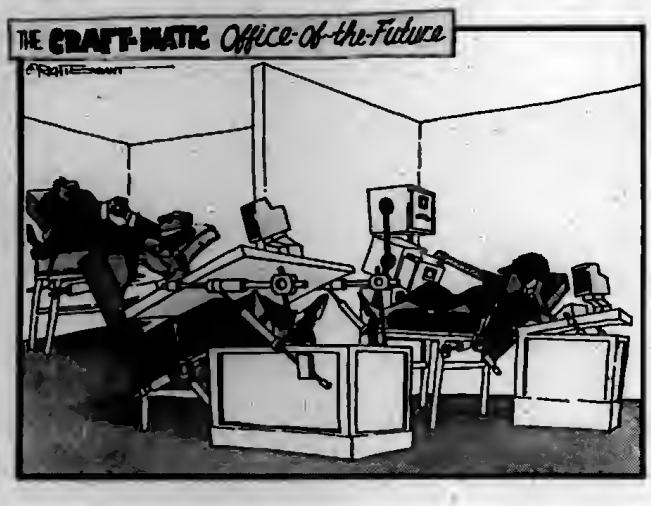

EXECUTIVE BRIEFING

■ **IBM is promising to improve high-end software quality** but implying that it will cut back on support of older software. The move, which is meant to nudge customers toward more current software releases, should be good news for large sites but may be a hardship for smaller users, who tend to upgrade less often. **Page 1.**

■ **Laptops and other sales-oriented technologies are easy to buy but tougher to make pay off.** IS managers and analysts say the biggest obstacles are poor integration, high costs, lack of supporting architecture and hostile user attitudes. However, notebook computer prices continue to plummet. Some analysts predict that users will see systems now selling for up to $3,500 go for less than $1,300 by year's end. **See stories pages 35 and 61.**

■ **Recession takes its toll on CIOs,** some of whom are finding their jobs are no longer needed. Pressure to disperse IS functions into user departments and flatten organizational structures are also squeezing out IS chiefs in some firms. **Page 1.**

■ **The chance to spend more time working on the new user group she chairs** is behind Elaine Bond's decision to move to part-time status at Chase Manhattan Bank. **Page 73.**

■ **DEC and Microsoft move closer together,** with DEC agreeing to sell LAN Manager and license Windows NT. DEC also plans to better integrate its Pathworks LAN operating system with Novell's Netware. **Page 4.**

■ **At Networld '92 Boston,** 3Com and Ungermann-Bass add security features to their hub products. **Page 1.** IS attendees seem preoccupied with finding a way to manage far-flung LANs without going back to centralized control. **Page 14.**

■ **An AS/400 overhaul is on tap,** with performance boosts expected across the line, along with services intended to nudge System/36 and System/38 users toward migration. **Page 8.**

■ **Nepotism and heavy-handed management** on An Wang's part were the reasons why Wang Labs went from 40% average annual growth in the decade ended in '83 to near bankruptcy by 1989, says a new book from *Boston Globe* writer Charles Kenney. **Page 67.**

■ **Unisys introduces a scalable A series line** at the midrange level and improves its client/server offerings. **Page 12.**

■ **IBM makes advanced technology moves on two fronts:** It opens a lab to develop massively parallel supercomputers and signs an agreement aimed at bringing object-oriented technology to its AIX CASE products. **Pages 4 and 8.**

■ **CA is suing a customer,** charging that State Street Bank violated license terms by acting as a service bureau. **Page 20.** The first few sites are getting beta copies of CA's Unix-based data center management software. That product line is due for general delivery in the third quarter. **Page 53.**

■ **Disk-array technology gets a boost** from a San Diego firm that has software to help Novell LANs access disk arrays and speed access. **Page 41.**

■ **On site this week:** A maker of stuffed animals fights back from a rough 1990, counting on a revamped IS organization that has gone from batch-processing mainframes and in-house applications to AS/400s. **Page 53.** Gillette and J. P. Morgan have their own reasons for outsourcing pieces of their international networks, but both chose the same vendor, BT North America. **Page 50.** In the continuing saga of learning what readers go through, *Computerworld*'s migration to Unix-based client/server technology moves into phase two. **Page 41.**

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Microsoft, DEC tighten ties

Companies increase application interoperability; DEC users may benefit

BY CHRIS LINDQUIST and SALLY CUSACK
CW STAFF

REDMOND, Wash. — Tighter links between Microsoft Corp. and Digital Equipment Corp. could mean better application interoperability for DEC users.

Under an expanded relationship disclosed last week, Microsoft will license the Windows New Technology (NT) operating system to DEC, while DEC will include Windows NT client and server support in its Pathworks network operating system. DEC will also become a Microsoft Strategic Integrator, one of several integrators selected by Microsoft to resell its full line of networking products, such as LAN Manager 2.1, as well as select applications.

Not yet disclosed but soon expected is DEC's decision to offer Windows NT on its soon-to-be-announced Alpha platform. Such a pairing could provide a high-power base for the upcoming operating system. Both companies, however, declined to comment on the matter.

However, DEC users said that long before anything could come of Windows NT on Alpha, they expect to benefit from the increased interoperability and openness the new deal promises.

"We have a significant investment in DEC, so any kind of third-party relationships that can add value for us is good," said George Kerns, vice president of information management at GTE Mobile Communications Services Corp. in Atlanta.

Other DEC sites said they hoped each company could use the agreement to shore up weak points, such as Microsoft's lack of networking products and DEC's lack of successful experience in the personal computer arena. "The relationship with Microsoft is a plus," said George Reid, director of MIS at Sanford C. Bernstein & Co. "DEC brings to the table all the networking that Microsoft lacks."

"We're really enthusiastic about NT on the Alpha chip set," added Raymond V. Sasso, chief information officer at J. R. Simplot Co. in Boise, Idaho. Sasso said he has been given preliminary looks at NT and is "really excited about the operating system."

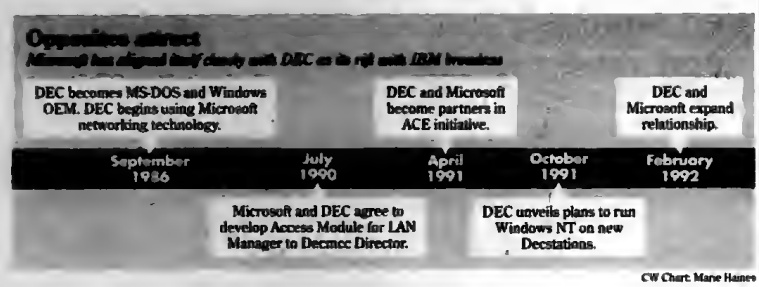
Microsoft will also gain interoperability once DEC builds both client and server support for NT under the Pathworks network operating system. And an Alpha-based platform would seem a logical location for an NT server, analysts said.

Benefits for both sides

"It's a win/win for DEC and Microsoft," said Peter Schay, vice president and director of Client/Server Logical View Group at Gartner Group, Inc., referring to the possibility of Windows NT running on Alpha. "DEC gets Windows applications onto its hardware architecture, and Microsoft gets a phenomenally powerful server platform for NT."

Schay described the scenario as "Cutler's Revenge," in reference to former DEC developer Dave Cutler, who is now heading Windows NT development at Microsoft. Cutler helped develop VMS and worked on a reduced instruction set computing architecture and operating system for DEC until the company ended its Prism project in 1988.

"DEC historically has not been very good with PCs," said Ken Sobel-Feldman, vice president for midrange systems strategies services at Meta Group, Inc., "and partnering with someone like Microsoft who understands them very well is a good move."



CW Chart: Marie Haines

IBM licenses software from object-oriented firm

BY MARYFRAN JOHNSON
CW STAFF

Sending a signal about its plans to bring object-oriented technology to the Unix-based RISC System/6000 line, IBM went public last week with a joint development and licensing agreement with Versant Object Technology in Menlo Park, Calif.

Although both companies were vague about their plans, they said they would work together on future products targeted for IBM's computer-aided software engineering (CASE) repository for AIX, its Unix variant. Initial products are expected to debut later this year.

Versant was the first object-oriented database vendor to announce support for IBM's AIX Software Development Environment Workbench/6000, an integrated CASE environment for the RS/6000 that was unveiled last month.

IBM has announced its intent to provide AIX CASE data integration services that support the Portable Common Tools Environment (PCTE), which is becoming a de facto standard worldwide for integrating data handled by a variety of CASE tools. Versant has also pledged allegiance to PCTE.

"We've all been saying that in order for CASE to happen on a grand scale, there's a real need for an object-oriented distributed repository," said Natalia Krol, an analyst at Meta Group, Inc. in Westport, Conn. "We're seeing the start of that now."

"This is a very big deal for Versant," said Andrew Chiu, a senior software engineer at BT North America, Inc. in San Jose, Calif. Chiu is using Versant's Object Database Management System running on Sun Microsystems, Inc. workstations to build tools for global network use internally at BT.

As a Versant user, Chiu is concerned that with the IBM alliance, his support could decrease.

"We were getting technical support from the research and development organization, and now this person no longer supports us — but someone is assigned from the technical support department instead," Chiu said. "We understand that IBM is now their biggest customer, but we hope that won't be a problem for us."

DEC takes over development of Netware for VAX systems

BY ELISABETH HORWITT
CW STAFF

BOSTON — Digital Equipment Corp. last week assumed responsibility for putting Netware on its own hosts — a job that Novell, Inc. has been doing with a marked lack of enthusiasm, users and analysts said.

DEC and Novell have been working for a year to further integrate Netware with Pathworks, DEC's personal computer local-area network operating system, said DEC's group manager, John Rose. "DEC will market, sell and service these products as part of Pathworks."

Netware users will be able to use familiar Netware applications and commands to access either Netware or Pathworks services. Pathworks will act as a liaison to DEC's corporatewide Network Application Support (NAS) services, the companies said.

The integrated Netware/Pathworks product will run on VAX VMS, RISC Ultrix and the Open Software Foundation's OSF/1 servers, DEC said. The vendor plans to officially announce and ship the VMS and Ultrix versions of the product by year's end, Rose said.

The OSF/1 version will be released later. No pricing was disclosed.

The products will supersede Novell's Netware for VMS, which Novell will continue to support, the vendors said.

New offerings

DEC's new offerings will target corporations, such as Smith Industries Corp., that want to use VAXs as servers on Novell networks. Formerly a major Netware user, the Malvern, Pa.-based aerospace manufacturer has been slowly converting to Pathworks because it was tired of maintaining two separate server platforms and was not about to get rid of the VAX that runs its corporate applications, according to Steve Ruger, Smith's information systems manager. Integration of Netware and Pathworks on VMS would save Smith from the expense of converting its remaining 25 PCs still on Netware, Ruger said.

It makes sense for DEC to take over integration of Netware with its own servers, given that Netware for VMS "has ultimately proven a distraction for Novell," said Richard Villars, a director at International Data Corp. in Framingham, Mass. Users have complained that Novell has been slow to provide key features on its VMS product, such as support for Apple Computer, Inc. Macintosh clients. "Netware for VMS is basically a dog," Ruger said.

DEC can add value to Netware in the area of wide-area networking services, the weak point of Netware, Villars said. DEC's NAS services will potentially allow Netware users to exchange electronic mail and compound documents transmitted over X.25 networks and share databases across multiple, distributed sites.

DEC will provide a migration path from Netware for VMS to its new products, the vendors said.

The upcoming Netware/Pathworks product will support all clients now supported by Pathworks, including Macintosh, OS/2, DOS and Windows workstations, DEC said.

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NEWS SHORTS

Bush accelerates halon phaseout

President Bush announced last week that the U.S. will accelerate the phaseout of halon, a gas used in computer room fire-suppression equipment, because it is a major culprit in the depletion of the Earth's protective ozone layer. He said production of halon will end Dec. 31, 1995, four years ahead of schedule, which will prompt data center managers to consider alternative fire protection strategies [CW, Dec. 9, 1991].

DEC, Clearpoint settle differences

Digital Equipment Corp. and Clearpoint Research Corp. have jointly agreed to settle out of court all pending litigation between the companies. The two companies have been in litigation since May 1991, when DEC filed suit in U.S. District Court in Boston alleging infringement of DEC patents. Clearpoint denied infringement and filed counterclaims against DEC and its patents. Last week, DEC agreed to dismiss the action, and Clearpoint has agreed to dismiss related countersuits. Clearpoint has also agreed to participate in all of DEC's standard VAXBI and SSP licensing programs.

IBM organizes for multimedia

IBM recently introduced a support program aimed at developers, designers and marketers of multimedia applications. The Ultimedia Developers Program is open to any multimedia applications creator in the U.S., and acceptance is based on the developer's plan to provide multimedia software on IBM computers. The program includes a variety of technical, marketing and related services. If you sign up before May 31, the first year's fee will be $2,000 instead of $4,000, and then $4,000 annually.

Wireless net to gain reliability

Ardis, the joint IBM/Motorola, Inc. wireless network service venture, is partnering with AT&T to provide increased network reliability to its customers, the companies announced last week. Under a $70 million agreement between Ardis, IBM and AT&T, Ardis has migrated its analog backbone to an IBM high-speed digital backbone and consolidated its 38 radio network control sites onto six AT&T facilities. AT&T's Accumaster Management Services will manage the resulting backbone, Ardisnet, and provide automatic rerouting around facility outages and fiber-optic cable cuts. IBM's Netview will manage the logical network.

Stratus boosts disaster protection

Stratus Computer, Inc. and Systems Design Associates, Inc. announced last week that Systems Design's Datasafe disaster protection software is now available on Stratus XA 2000 and XA/R Continuous Processing Systems. Datasafe allows mission-critical data files to be mirrored on two or more Stratus systems and provides protection against such disasters as extended power outages, fire, telephone network failures and natural disasters..

Short takes

Addator, Inc., has announced the latest version of its $139 Superstor file compression utility, which now allows easier writing of compressed data to floppy disks, easier transfer of data to machines not running Superstor and improved data compression ratios . . . **AT&T** has signed a multimillion dollar joint venture deal with a Russian firm and will provide and market digital and international phone links in the former Soviet Union . . . **Advanced Micro Devices, Inc.**'s 40-MHz AM386DXL processor surfaced today as the chip of choice in **Wyse Technology, Inc.**'s new 386/40 box . . . **IBM** and **Core International, Inc.** will build a fault-tolerant network server based on Personal System/2 and Micro Channel Architecture technology . . . A U.S. district court jury in Boston last week upheld **Wang Laboratories, Inc.**'s patent on printer interface technology in its 5-year-old suit, which went to trial in December 1991, against CFR Associates, Inc.

More news shorts on page 16

Client/server may not cost less

BY JEAN S. BOZMAN
CW STAFF

SAN DIEGO — Client/server computing is moving into high gear, spurred by recessionary concerns about costs and the continued networking of standalone personal computers, according to a Gartner Group, Inc. conference held here last week.

Hundreds of pilot local-area network-based client/server projects are moving into production at large sites worldwide, Gartner said.

But users' hopes of saving money by using client/server applications may be dashed once they realize that the cost required to make each program work remains the same.

Gartner estimated that there are about 9.3 million PCs and workstations installed in networks that support client/server applications but predicted there will be 31 million by 1996.

"Client/server really doesn't save you money" in your budget, said Roy Schulte, a program director at Gartner's Software Management Strategies Service. "It really ends up making your end users more productive."

The average boost in end-user productivity is 30% to 50%, he said. IBM is throwing its weight behind client/server, Schulte said, "because it uses the mainframe in ways it's never been used before."

Yet several key obstacles remain to be overcome before client/server applications overtake traditional top-down information systems, analysts said. Among them are the need for better client/server development tools and a greater acceptance of relational database management systems.

"We believe 1992 is the year when more money will be spent for RDBMSs than for nonrelational databases," said Donald Feinberg, program director at Gartner's software service.

Several classes of client/server processing have already taken hold in Gartner client sites, Schulte reported:

- Using clients as front ends to large corporate databases.
- Upgrading PCs from their former role as terminal emulators to a new role as a local data processing platform.
- Using clients as a collection point for data from various sources.

Microsoft updates E-mail

Microsoft plans to deliver Mail 3.0 with enhanced OS/2 and Windows clients in the second quarter, according to Laura Jennings, group product manager of workgroup applications.

Previously, the company had planned to first deliver the enhanced Windows client for Mail 3.0 and then follow with enhancements for other clients, including OS/2, in twelve months.

The company demonstrated Mail 3.0 with both OS/2 and Windows clients last week at Networld '92. Jennings said Mail 3.0 will begin shipping to beta-test sites within a few weeks.

Mail 3.0 is said to be a major improvement over Mail 2.1, with additions to both the client and back-end capabilities. Mail 3.0 will also support DOS and Apple Computer, Inc. Macintosh clients, but they will not receive the additional features until later this year or early next year.

The new client highlights include an updated graphical user interface that features a Toolbar, drag-and-drop functionality and multiple windows that can be resized. It also has a message finder, which would allow users to filter incoming messages by subject or sender, and support for Object Linking and Embedding.

ROSEMARY HAMILTON

CA targeting groupware with scheduling package

BY ROSEMARY HAMILTON
CW STAFF

Computer Associates International, Inc. is zeroing in on the emerging groupware market and plans to introduce several products this year, a company official said last week.

"This is something very intelligent for CA to do to get out of the glass house," said Stuart Woodring, an analyst at Forrester Research, Inc. in Cambridge, Mass.

CA will take its first step next month when it ships a scheduling product, called CA-Uptodate, for the Microsoft Corp. Windows environment, said Richard Bemindt, CA's assistant vice president of research and development. Four or five other workgroup-related applications will follow this year, although Bemindt did not specify what they would be. However, he did say they will result from a combination of acquired and internally developed products.

The Uptodate software was acquired by CA in mid-1991 from Strasbourg, France-based Polylog, and CA has been selling it in Europe since then. Uptodate allows users to schedule meetings for groups of users as well as maintain information on activities such as phone calls, correspondence and projects.

Trial run

Nordstrom, Inc. plans to evaluate CA-Uptodate soon, said Patrick Adkisson, information services manager. The firm, which operates a chain of upscale department stores, has been running CA's mainframe-based electronic-mail software for seven years and is planning to "grow" its local-area network installation because "workgroup products are more suited for LANs than mainframes," he said.

"We will certainly look at other vendors' products," Adkisson added, "but we have a long and good relationship with CA."

Along with the workgroup applications, CA will continue previously announced plans to port its mainframe-based E-mail software to a LAN platform. The company intends to plug the groupware applications into the E-mail system, Bemindt said.

CA's approach is to provide workgroup applications as individual components that can plug into its E-mail systems. It is planning to offer Mail, its E-mail package, as a foundation or workgroup platform and then sell workgroup applications such as conferencing and scheduling. Mail 3.0 will begin shipping in the second quarter.

In contrast, Lotus Development Corp. sells a complete environment. Notes is made up of several workgroup functions, including document database management and messaging.

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Converts sought in AS/400 overhaul

BY SALLY CUSACK
CW STAFF

NEW YORK — IBM will continue its aggressive assault on the midrange this week by unveiling new Application System/400 models spanning the performance gamut.

With the Model E series, IBM hopes to lure some of its older mainframe customers with anticipated performance increases of more than 50% on the high end of the midrange. The company may also actively woo the sizable, if aging, System 36 base of customers, analysts said.

The worldwide installed base of System 34, 36 and 38 users totaled more than 116,000 in 1991, and analysts estimated that between 7% and 10% of the System/36 base migrates to an AS/400 each year, while another 10% moves to local-area network configurations.

Too late to migrate

J. Roger Peck, past president of Common, an IBM midrange user group in Chicago, said that most System/36 users who needed to migrate to an AS/400 have already done so. "Current S/36 users are very happy with their systems and haven't been convinced that they should move," Peck said, adding that there is still a "very active third-party market out there for parts and supplies."

Insiders predicted that IBM will offer low-priced migration software and free software tools to S/36 users. In addition, users with relatively straightforward applications may be able to take advantage of a mail-in program whereby they could send IBM their existing applications on tape and the vendor would convert them to run on the AS/400 platform at nominal cost.

Announcements expected this week include the following:

▶A high-end E platform with a three-way processor that nearly doubles the performance of the current top-of-the-line AS/400 D80.

▶An entry-level E02 that will offer more performance than the D02 at the same $12,000 price point.

▶A low-priced IBM 3490 tape subsystem in a rack-mount version.

▶System management software tools for high-end AS/400 customers.

Source: Elms Information Services Group
CW Chart: Janell Genovese

▶Interoperability of the AS/400 in heterogeneous computing environments.

While the vendor tries to coax users on either side of the midrange spectrum, some existing AS/400 customers may be almost ready to move up to the next platform.

Michael J. Stone, manager of information systems at the state of Oregon Department of General Services, is currently running purchasing applications on an IBM AS/400 D20. The department bought the AS/400 last year when moving off a Wang Laboratories, Inc. VS platform.

"Based on the positive response we've had and new software we plan to install, we may be looking to upgrade within the next 18 months or so," Stone said.

IBM eyes software upgrade campaign

CONTINUED FROM PAGE 1

ciated products from IBM and others," Clague said. "That way we can try to replicate a problem that a customer calls in and work to solve it."

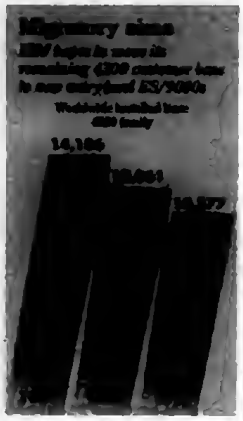
Clague emphasized, however, that before IBM makes any such moves, users will receive plenty of notice. An IBM spokeswoman said customers typically receive at least a year's warning before support is ended for any mainframe systems software.

One key item IBM will need to address before it can persuade customers to buy the very latest software releases is the issue of bugs. Many users are hesitant to adopt the new software versions right away, preferring to wait until the kinks are worked out.

IBM is working to bring up the quality of new software releases, but it may take a while. "The software quality is not quite there yet," Clague said. "Our latest release of [MVS] ESA had about a six-times improvement, but we're holding feet to the fire for a 10-times improvement" for high-end software in general. He said IBM will hit that target by year's end.

Users seemed to like the idea of staying up-to-date, provided IBM lives up to its pledge of reducing bugs in new releases. "They have to cut costs on their side," said James Gray, vice president of North American information systems at Tupperware Co. in Orlando, Fla. Still, he said, "It could be somewhat of a problem for us. We're more current than we were, but we're not bleeding-edge."

"IBM has to do something about old software. It's a horrendous problem — and their overhead is passed on to customers, if not in this release, then in the next one," said John Flach, chief of data processing at the Texas Department of Public Safety in Austin, Texas. His shop is several releases behind, although be



Source: Computer Intelligence/Infocorp

plans to upgrade to Enterprise Systems Architecture next year, and "that will force us to get up to snuff."

Analysts, too, were bullish. "It will rattle the chains of those laggards that buy used IBM machines," said Bob Djurdjevic, president of Annex Research in Phoenix. "It will not affect those customers that give IBM a significant amount of business anyway." A good portion of the used-equipment base is on older software releases, he said.

IBM seems quite aware that this policy probably already mirrors what most very large shops are doing. "Around 400 customers give us between 75% and 85% of our revenues," Clague said. He said IBM will maintain its monthly leasing program for software because customers prefer it as a way of smoothing out licensing costs rather than paying for it all it in a onetime charge.

A family portrait

Last week, IBM unveiled air-cooled processors that round out the low end of its Enterprise System/9000 family. The company also said it is shipping five ES/9000 processors, announced last September, earlier than planned. The Models 520, 640, 660, 740 and 860 will be available this month. Originally, all but the 860 were to be delivered in March.

Prices for a minimum configuration, which includes 64M bytes of memory and eight channels, begin at $462,000. It will be available in April and is upgradable to any other processor in the 9121 family, the company said.

The second machine is a rack-mounted model in the 9221 group. The Model 200 is the upgrade path for existing users that want extra power, IBM said. A starter machine with 64M bytes of memory sells for $360,000.

JOHANNA AMBROSIO

IBM establishes laboratory to develop parallel systems

BY MICHAEL ALEXANDER
CW STAFF

KINGSTON, N.Y. — In a move that takes it one step closer to the massively parallel computer market, IBM announced plans last week to open a laboratory to design and build supercomputers.

The supercomputers developed by IBM's new Highly Parallel Supercomputing Systems Laboratory here will be built around multiple RISC System/6000 microprocessors running AIX, the company said.

The laboratory will initially offer machines that will perform in the range of hundreds of billions of floating-point operations per second (FLOPS) and will eventually offer massively parallel machines that perform in the TFLOPS range. IBM said it expects to announce the delivery date for the lab's first product, a computer based on tens of processors, later this year.

The supercomputers will be marketed only to the scientific and technical community, said Irving Wladawsky-Berger, assistant general manager for supercomputing at IBM. The decision to open the laboratory was prompted by IBM's customers, which have been hooking RS/6000 workstations into clusters to perform supercomputing tasks, Wladawsky-Berger said.

"Other companies like Hewlett-Packard and Sun will follow suit with strategies like this," said Gary Smaby, president of The Smaby Group, a Minneapolis research firm.

The decision to push more actively into parallel processing generated considerable internal debate, in part because the machines could eventually compete with IBM's own mainframes, Wladawsky-Berger said. Ultimately, "the direction came loud and clear from the customers," he said.

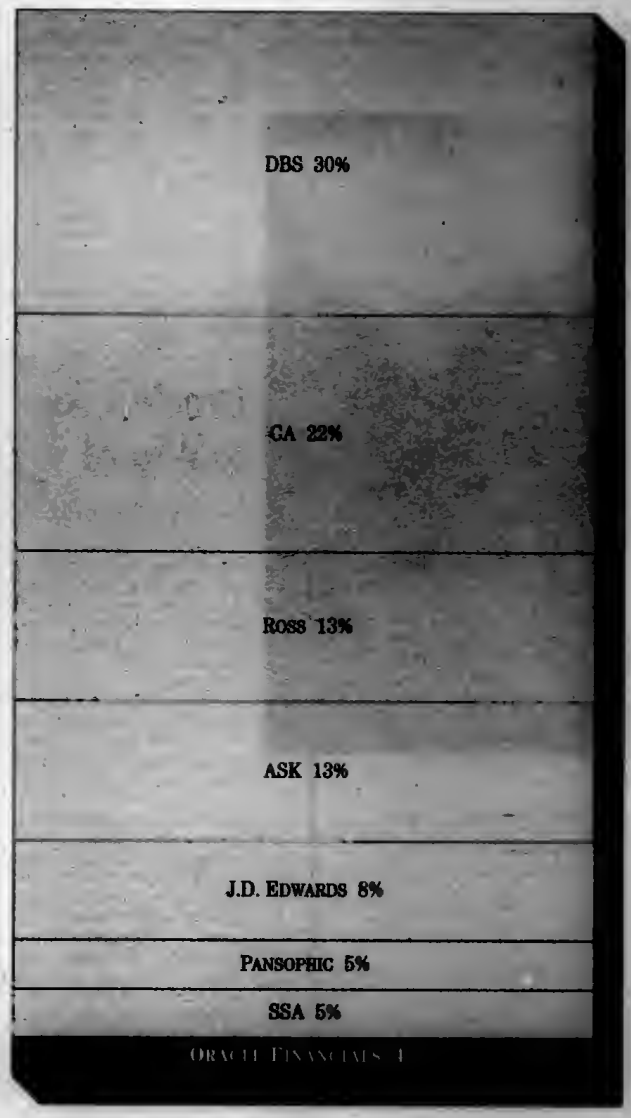
Unaffected by the laboratory's creation will be IBM's investment in Supercomputing Systems, Inc. and a technology exchange agreement with Thinking Machines Corp., an IBM spokeswoman said.

Super strategy

IBM's new highly parallel computing laboratory is part of IBM's multilevel supercomputing strategy, according to the company. That strategy includes:

- Continued enhancement of the IBM vector facility, an optional feature for numerically intensive applications on the Enterprise System/9000 and ES/3090 systems.
- The development of a stand-alone highly parallel system, using large numbers of RISC microprocessors, with an option to integrate the system to ES/9000 processors.
- IBM RS/6000 clusters, consisting of a small number of processors that function as an entry-level batch or parallel server.

THE FINANCIAL SOFTWARE MARKET HAS JUST BEEN TURNED UPSIDE DOWN.



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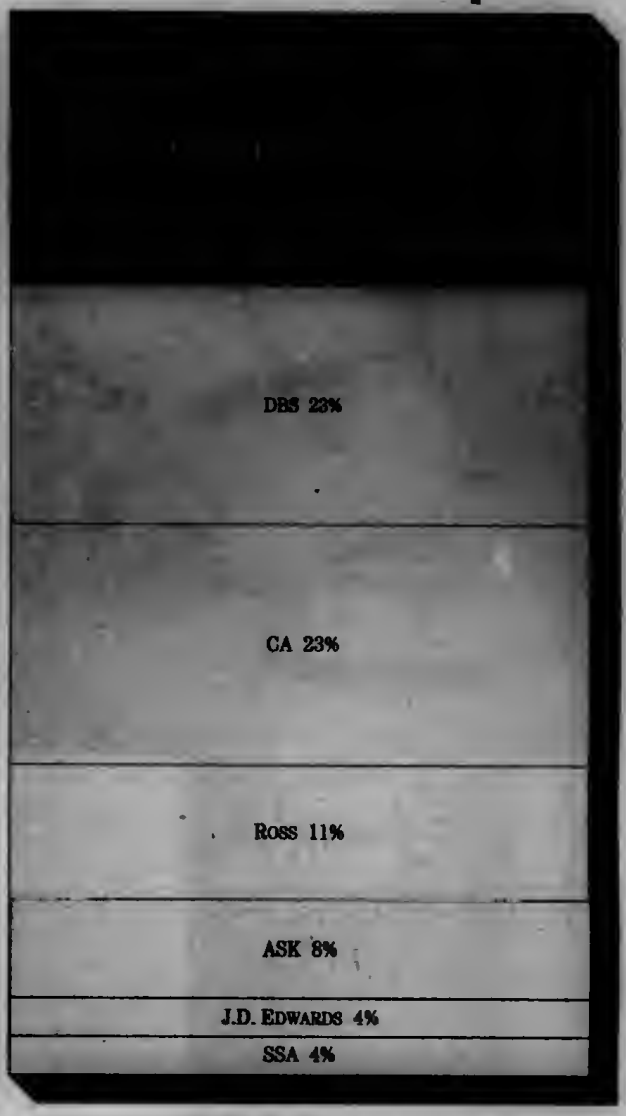

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Apple names its price in Windows copyright suit

BY JAMES DALY
CW STAFF

CUPERTINO, Calif. — Apple Computer, Inc. finally put a price tag on the industry's most closely watched litigation last week when it was disclosed that it will seek $4.36 billion in damages from Microsoft Corp. as part of its high-stakes copyright infringement suit.

Microsoft attorneys ridiculed the amount, which was released in a memorandum from Apple earlier this month and reflected the opinion of an expert witness expected to be testifying on Apple's behalf.

"They're insupportable and speculative," said William Neukom, vice president of Microsoft's law and corporate affairs office.

An Apple spokesman said the figures cited by Microsoft do not represent the formal damage claim that will be submitted when the case goes to trial, which could be as early as June or July.

Attorneys familiar with the case said that even if Apple wins in court, it will probably collect only a fraction of what it is seeking from both Microsoft and Hewlett-Packard Co., which was also sued by Apple.

The Apple memo claims the mere presence of Windows in the market has caused it to lose more than $3 billion in profits as a result of reduced unit sales and depressed hardware selling prices.

Apple will seek an additional $1.3 billion from revenue that Microsoft has received from Windows 3.0 and other Microsoft software that works with it. It could not be learned how much Apple will seek from Palo Alto, Calif.-based HP.

Apple sued Microsoft and HP in March 1988, charging that the overlapping windows and icon-manipulation screen features in Windows 2.03 and HP's New Wave, which is based on Windows, violated Apple copyrights.

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Oracle links to Wizard

BY JEAN S. BOZMAN
CW STAFF

Oracle Corp. demonstrated its bent to cover the entire computing spectrum last week by announcing connectivity to Sharp Electronic Corp.'s Wizard handheld computer.

The Wizard — usually sold in department stores for $250 to $400 — joins computers as diverse as IBM mainframes, Digital Equipment Corp. VAXs and Unix workstations that can access Oracle databases.

Oracle's new Palmlink application interface would enable developers to build applications to link the 500,000 Wizards on the market with databases residing on desktop IBM Personal Computers or Apple Computer, Inc. Macintoshes. All users would need is a $129 cable kit to connect the Wizard with the PC's backplane, a $299 copy of Palmlink and the $299 Oracle Card application tool kit.

Updated data

Data entered on a Wizard can update an Oracle database or be sent to another Oracle user via Oracle*Mail electronic mail, said Bill Ford, director of marketing at Oracle's New Technology Division. Oracle and Sharp will jointly market the new products beginning this week.

Gil DeLiso, director of Sharp's Wizard Division in Mahwah, N.J., said he thinks the time has come for the handheld device to be widely accepted as a computer in its own right.

"Only five of every 100 people on the planet can use a computer," DeLiso said. "A computer has got to be as easy to use as a calculator or a telephone. It's got to be nonthreatening for the technology to be widely used."

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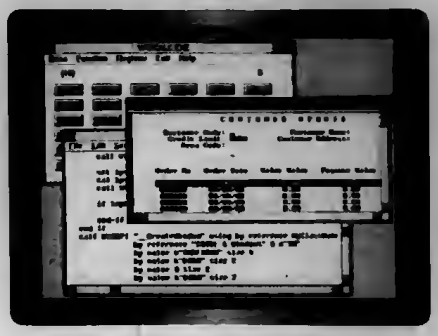

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Unisys brings large systems features to midrange line

Scalable A11 costs less to run than A12, offers high-end capabilities

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Unisys Corp. filled its A series mainframe line last week with a system family that spans four of the company's existing midrange processors and includes system software features now found only in its two largest A series systems.

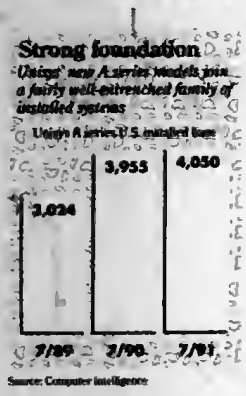
The new A11 consists of two single-processor and two dual-processor models, ranging in price from $400,000 to $1 million.

A scalable system in the middle of the A series is a direct response to pent-up demand among customers of smaller A series systems who wanted the capabilities of the high-end A16 and A19 systems but resisted a move through the A12, a mature system Unisys introduced in 1987.

"The A12 is an excellent machine ... but is seen by most people as the end of a product line," said Paul Woitzel, manager of technical support at Blue Cross/Blue Shield of North Dakota and junior vice chairman of the A series subgroup at Cube, Inc., one of the two Unisys user groups in the U.S.

One major obstacle of the A12, Unisys officials conceded last week, was its raised floor, data center environmental requirement.

Because the A11 can be operated in an office setting, "it reduces floor space, electrical and cooling costs by 20% or more," said John Rioux, a Unisys vice president. Rioux said he expects 85% of A11 sales to go into the existing A series base. Across its product family, that base represents about 13,000 installations worldwide, he said.



Source: Computer Intelligence

The retiring of the A12 began a year and a half ago, when Unisys introduced the A16, a scalable system overlapping the high end of the A12. Because the A11 overlaps the low end of the A12 performance range, the company will no longer market the A12, Rioux added.

"I would think for A6 and even the A4 [users], it will be a path to use, since they'll be able to expand by swapping out cards," said Russ Matter, a systems analyst with a data processing unit in Moorhead, Minn., responsible for administrative computing for local school districts.

The A11 announcement, which had been expected by customers, was welcomed by current A series customers, some of whom had deferred upgrades in anticipation of the new system.

"They've taken the best from the small [mainframe] and the best of the large systems and packaged it at an attractive price," said Barbara Shipley, manager of network and computer services at Savannah Electric & Power Co. in Savannah, Ga.

At an estimated performance of 35 trans./sec., the single-processor A11 falls inside the high end of the A6 and the low end of the A16 line.

Woitzel noted that the A11 shares a number of features of the the two top-end A series systems, the A16 and A19. For example, like the A16, the A11 can be partitioned, and the dual-process A11 can be operated either as a monolithic processor or as two independent computing environments running their own copies of the Unisys MCP/AS operating system.

Likewise, the A11 also derives its I/O architecture from the A16, with the dual-processor model able to handle 1,800 I/O requests per second, according to Unisys.

The A11-211 and A11-222 dual-processor machines are available immediately. Higher performance single- and dual-processor models, the A11-411 and 422, will begin shipping in June, Unisys said.

A server connection

Unisys upped its stake in the multivendor client/server arena last week by announcing a high-speed channel-based connection between its A series mainframes and either Unix System V or OS/2 servers.

The connection is based on Unisys' Cooperative Computing Environment (CCE), announced approximately a year ago. The initial CCE also linked A series mainframes to OS/2 and Unix environments; however, the original product linked the two server environments within a single, low-end Micro A Model MA825 box, Unisys said.

The new implementation consists of a 20M byte/sec. channel-based connection that will link either Unix or OS/2 boxes on one side and the entire Unisys A series on the other, according to a Unisys spokesman.

The link, combined with CCE's remote procedure call technology, is said to allow clients attached to one server environment to transparently access resources on the other.

Express Newspapers PLC has been using the existing low-end CCE to interconnect Unix-based electronic layout devices on an Ethernet LAN with an A series production control system, according to Peter Everiss, a group information technology controller at the London-based publishing company.

The link allows A series production applications to query various layout devices "to find out whether something is ready for output, or what is missing," he added.

The higher capacity versions of CCE will potentially allow Express Newspapers to introduce bandwidth-intensive applications, such as dragging graphics files and document images from the Unix systems in layout to an accounting system on an A series, "just by pushing a button," Everiss said.

The CCE implementations for Unisys Series A-11/211 and A-11/222 hosts are due out in March; A16 and A19 configurations are slated for third-quarter shipment, Unisys said.

An 11-user, entry-level CCE package, including a Unisys Unix or OS/2 platform, channel adapters for the bus and CCE software, is priced at $24,000.

ELISABETH HORWITT

Sun dons pinstripes for corporate user pitch

CONTINUED FROM PAGE 1

vice president of investment operations. "We are very pleased with our Sun workstations, but [HP] is really outdistancing them when it comes to dealing with commercial customers."

The bank uses a wide-area network of 85 Sun workstations for a trading application and also runs Lotus Development Corp. and Wordperfect Corp. applications on the Sun machines. But when the bank's corporate office began considering a broader migration to Unix systems, HP weighed in with a detailed proposal, while the local Sun reseller merely shipped over a handful of brochures.

Sun officials acknowledged their shortcomings in this arena. "Where we are lacking most is in our commercial sales approach," said Nancy Colwell, director of commercial tools and technologies at Sun.

However, a plan of attack is shaping up, with many of the pieces falling into place over the next year, Colwell added. They include the following:

- Launching a worldwide training and awareness program called the Commercial Markets Initiative, which focuses on selling to information systems directors and chief executive officers.
- Expanding Sun's porting centers with "integration" centers, where customers and software vendors can work firsthand with connectivity between Sun's and other vendors' machines.
- Widening commercial reseller and distribution channels and coaxing more software vendors to port IBM mainframe-class applications, tools and utilities to the Sun platform.

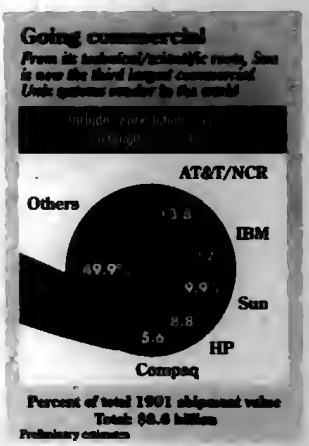
One of the most important commercial sites for Sun is at Northwest Airlines in Eagan, Minn., where an extensive network of 450 Sun workstations and at least 40 servers work in conjunction with a mainframe for passenger revenue accounting.

"Overall, Sun has been very responsive to us," said Scott Grengs, the project leader for Northwest's passenger system.

One concern, Grengs added, is that when problems do arise, Sun often recommends solving them by moving to the latest hardware or software revision. "They sometimes don't understand we actually have a production system on our Sun hardware, so we cannot keep up with all the latest revisions," he said.

Like other large commercial users with Unix networks, Northwest also had to develop its own mainframe-quality data center administration tools — a reflection not just on Sun but on Unix operating systems in general.

"The system control is too raw. We don't have the utilities or the security features we really need," said Tery Zamora, supervisor of the Microsystems Group at Carnival Cruise Lines, Inc. in Miami.



Source: IDC CW Chart: Janell Genovese

The firm is using 17 Sparcstations and servers for both shipboard and shoreline processing, with plans to integrate the Sun machines with a Unisys 2200 mainframe.

"We have grown very fast, and our needs change on a daily basis, but our Sun service has been fabulous," Zamora said.

In Boulder, Colo., Consumer Health Services, Inc. has found Sun equipment "incredibly well-suited for the commercial environment because it's so reliable," said Barbara Kostanick, MIS director. The company uses a network of 15 Sun workstations to support a nationwide patient/doctor telephone matching service.

"Two and a half years ago, Sun really didn't know how to work with commercial customers," Kostanick said, "but they've come a long way."

"THE TASK IS TO INTEGRATE THE OLD AND THE NEW."

SYBASE

CLIENT/SERVER ARCHITECTURE FOR THE ON-LINE ENTERPRISE

Managers seek balance in LAN control

BY ELISABETH HORWITT
CW STAFF

BOSTON — A large number of information systems managers walking the floors of last week's Networld '92 show seemed to be struggling with the same dilemma: how to devise a distributed local-area network management strategy that encourages users to take charge of their computing destinies — without allowing them to abuse their new freedom.

This puts many IS managers in the role of anxious parents watching their children grow up.

As PHH Relocation and Real Estate Management Services moves toward its goal of putting 80% of applications on LANs, the firm's information technology services department is "trying to get back the control we had on mainframes and minis," said Charles Venter, the group's director. At the same time, he added, "We don't want to control users so much as make sure they don't do something harmful, and fix whatever problems develop."

This means finding the right tools to allow IS to scan the health of various distributed LAN systems because users often do not have the expertise to "tell the doctor where it hurts," Venter said.

Several IS managers said they were struggling to delineate responsibility for LAN systems between IS or telecommunications departments and local user groups. The lines must be clear but flexible, sources agreed.

Mark R. Roy, a network operations consultant at John Hancock Financial Services, said he believes the local administrator should take responsibility for keeping track of user access on the LAN: "Every time someone leaves, you don't want to have to file a [security] report to the central management group."

However, IS needs a higher level of access to LAN systems so that it can, for example, shut down a given port after a security breach, Roy said.

The network control center should be able to take over security and administration during off-hours, when local LAN administrators generally go home, IS managers pointed out.

Motorola, Inc. sites take on only as much network management responsibility as they can handle, according to Jim Moorhouse, the company's manager of network management strategies. "Sales offices with no management expertise can contract with the corporation to manage their LAN, while big groups with their own network management staffs may not even forward alarms unless they have no staff after hours," he said.

United Parcel Service, Inc. is currently hammering out a corporatewide LAN management strategy in which some network components — such as T1 backbones and shared databases — would be centrally managed, while LAN management would be handled largely at the district level, according to Randy Smith, telecommunications manager.

One likely scenario is an "escalation process" that automatically alerts the network control center when a LAN problem gets too serious for the local group to handle, Smith said.

At McDonald's Corp., users' LAN management responsibilities will probably be limited to "knowing how to boot and back up a LAN and call us when there is a problem," said Michael Disabato, manager of the firm's network management design group.

Confounded again

Tire kickers abounded at the network management software exhibits at last week's Networld '92 conference, as a panel of information systems managers from Fortune 500 companies suggested the products they wanted to see were still a few years off.

The panel included Michael Disabato, McDonald's; Bechir Abbassi, Texaco, Inc.; Mark Roy, John Hancock Financial Services; and Jim Moorhouse, Motorola.

The following summarizes some of the gaps the panelists cited in vendors' current network management offerings:

▶ **Problem:** Too many competing platforms.
Result: Fear, uncertainty and doubt about committing to a network management product.
Solution: Industry implementation of standards to ensure that users are not trapped on one platform.

▶ **Problem:** Standards groups are moving too slowly. Too many variations, options and extensions on existing standards mean compliance does not guarantee multivendor interoperability.
Result: Some companies have put off purchasing an integrated management solution indefinitely; others await Open Software Foundation's Distributed Management Environment.
Solution: Groups such as the OSI Network Management Forum and National Institute of Standards and Technology are coming out with guidelines for consistent standards in cooperation with vendors and users.

▶ **Problem:** Existing systems are too costly.
Result: See preceding item.
Solution: Get systems down to six-digit figures; develop truly open platforms, interfaces and tool kits and make them easily accessible and low-cost to encourage new market entries.

▶ **Problem:** The need to implement multiple, proprietary systems to effectively manage a multitude of proprietary network devices.
Result: The "swivel chair syndrome," where network managers frantically swivel from one monitor to the next as they track a single failure, such as a line break, across the network.
Solution: Standards-based "manager of managers" platforms that collect and correlate alerts across multivendor devices.

ELISABETH HORWITT

LAN security marching to smart hubs

CONTINUED FROM PAGE 1

vice president of network research.

The silicon-based 3Com technology is more encompassing than the hardware/software UB implementation, announced ahead of schedule to counter 3Com's Networld rollout, analysts said. 3Com introduced an application-specific integrated circuit-based security architecture for LANs implemented in the Linkbuilder ECS high-end hub. 3Com gained the hub two weeks ago when it acquired the data networking product line of BICC Data Networks.

The firm's LAN Security Architecture (LSA) was designed to deliver data only to those users demonstrating a "need to know." The system is said to scramble data to all other network devices.

The LSA cannot accommodate this feature in Token Ring networks because of the node-to-node message-copying scheme of the token-passing access method, acknowledged Chris Gahan, market development manager at 3Com's UK-based Premises Distribution Division. However, he said, LSA features allowing administrators to create closed user groups, eliminate fallible password protection and automatically disconnect unauthorized users are applicable to Token Ring and are being developed.

UB said it will offer a software/hardware access control mechanism implemented on a new 10Base-T concentrator module for its Access/One high-end hub that it plans to announce within two weeks.

Users can program the concentrator to receive packets from one workstation or a group of workstations and block all others, said Brad Noblet, general manager of one of UB's hub development operations divisions. The company would not provide 10Base-T security pricing information.

Cabletron said it will adopt the silicon approach to protect against network eavesdropping. Currently, its hub provides port-locking to prevent unauthorized users from accessing data, and the company said it plans to add the extra level of security to prevent unauthorized interception of data at the higher network layers that can be done with protocol analysis tools, said Bob Anderson, Cabletron's Ethernet product manager.

Security for Ethernet-based LANs such as 10Base-T, which supports the 10M bit/sec. contention-based LAN over unshielded twisted-pair wire, is an issue because "Ethernet is a completely open environment. You can listen promiscuously to any Ethernet conversation," said Paul Callahan, a senior analyst for network strategies at Forrester Research, Inc. in Cambridge, Mass.

Though a tenth the price of standard encryption schemes at $60 per port, 3Com's offering is "much too expensive for the mainstream user" as a percentage of per-port hub network connection costs, said Charlie Robbins, director of communications research at Boston-based consultancy Aberdeen Group. Those prices currently hover around $100.

Lori Steinmetz, data network manager at The Christian Science Publishing Society, a 3Com hub and router user, acknowledged that he probably would not be able to justify the $60 per-port cost for his mission-critical network "until something [intrusive] happens. When it does, the money will come pouring in."

This is a typical corporate modus operandi, Callahan said.

Cabletron said it expects its silicon security option to range from $20 to $40 per port.

One still unanswered question is how security features available on one or a few of a vendor's hub offerings will play with other members of the vendor's

3Com, Novell team up

Eric Benhamou, 3Com president, acknowledged that a year ago, he would have advocated migrating 3Com's 3+Open network operating system customers to Microsoft Corp.'s LAN Manager, on which 3+Open is based. 3Com exited the LAN software business about 18 months ago to focus on internetworking, wiring hub, terminal server and network adapter card products.

However, in light of Novell, Inc.'s recently announced tools for migrating 3+Open to Netware, 3Com teamed up with the market share giant at last week's Networld '92 Boston show on joint marketing programs to benefit reseller channels. The joint activities included seminars on how to expand Netware environments with 3Com products and interoperability testing and certification.

Benhamou said that because the majority of 3Com wiring hub sales are to Netware environments, all 3Com adapter cards now have Netware drivers, and 3Com is currently developing hub card products that conform to Novell's Hub Management Interface specification.

He added that the Novell alliance "will have no effect" on 3Com's relationship with Microsoft and that 3Com will ultimately invest "several tens of millions of dollars to exit from the workgroup business" over a five- to seven-year period.

JOANIE M. WEXLER

Operation Sundevil nabs first suspect

Defendant pleads guilty to possession of access codes, faces 10-year term

BY MICHAEL ALEXANDER
CW STAFF

The U.S. Department of Justice said last week that it had successfully completed its first prosecution in the Operation Sundevil investigation.

Robert Chandler, 21, pleaded guilty in federal court in San Diego to a single felony for possessing 15 or more access codes, which can be used illegally to make toll-free telephone calls, said Scott Charney, who heads the Justice Department's computer crime unit in Washington, D.C. Chandler also admitted to using the access codes, Charney said.

Chandler will be sentenced on May 11. The legal maximum penalty is 10 years' imprisonment, but federal prosecutors will probably recommend probation, assuming the sentencing guidelines and the judge handling the case permit it, Charney said.

Chandler may also be required to make restitution of a still-undetermined amount for telephone calls made with the access code.

On May 7 and 8, 1990, U.S. Secret Service agents and local law enforcement officials executed more than 20 search warrants in 14 cities in a nationwide crackdown on computer crime code called Operation Sundevil. Federal law enforcers said the raid was aimed at rounding up computer-using outlaws who were engaged in telephone and credit-card fraud.

Approximately 42 computers and 23,000 disks were swept up in the dragnet, but until last week there were no indictments or convictions in the investigation.

The Justice Department has been severely criticized by Computer Professionals for Social Responsibility (CPSR), the Electronic Frontier Foundation and other advocacy groups for its handling of the Operation Sundevil cases. CPSR has charged that federal law enforcers trampled on the First and Fourth Amendment rights of those targeted in the raid.

Sybase refines DBMS tool kit

BY JEAN S. BOZMAN
CW STAFF

EMERYVILLE, Calif. — Sybase, Inc. last week unveiled its new and improved application tool kit, which fixes several product flaws and adds layers of support for graphical displays.

Industry analysts said the changes will make Sybase a stronger competitor against Oracle Corp. and The Ask Cos.' Ingres Products Division, since both have extensive application tool sets.

APT Workbench 5.0 contains fixes suggested by Sybase users, who found APT 4.0's memory usage inefficient and its interface somewhat cumbersome [CW, Feb. 10].

"Users had complaints about APT being keystroke-intensive," said Berl Hartman, vice president of product marketing at Sybase. "They also said we took up too many lines on the menu bar." Both problems have been fixed in APT 5.0, she said.

The APT 5.0 software includes a new graphical user interface (GUI) translator that will convert Sybase character-based applications to the Open Software Foundation's Motif interface or to Sun Microsystems, Inc.'s Open Look. Other modules will allow users to further customize GUI screens. Sybase also integrated products from its subsidiary, SQL Solutions, Inc. in Burlington, Mass., into APT 5.0, including a testing facility and a debug module.

Prices for APT Workbench 5.0 range from $1,880 to $128,080.

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NEWS SHORTS

S.F. VDT law struck down

San Francisco's VDT-safety law was struck down in court last week. Superior Court Judge Lucy McCabe said the city had preempted the state's role as regulator of workplace safety when it passed the law in December 1990. The legislation required city businesses to provide their employees with office furniture, lighting and training to reduce worker stress. Elaine Warren, deputy city attorney for San Francisco, said her department was disappointed with the ruling and may appeal it.

IBM cuts laptop tag — again

IBM slashed $1,200 from the price of its Personal System/2 Model L40SX laptop computer last week. It was the fourth time IBM has cut prices on the L40 since introducing it in March 1991. The L40SX is now priced at $2,495 in its base configuration of 2M bytes of random-access memory and a 60M-byte hard drive, 32% lower than its previous price of $3,645. IBM cut prices on all the notebook's options as well.

Cray Computer back to basics . . .

Cray Computer Corp. said last week it is abandoning plans to build the Cray 3 supercomputer to pursue less ambitious systems, according to a published report. Cray Computer's decision to downscale its plans was triggered when the University of California's Lawrence Livermore National Laboratory, Cray Computer's sole customer for the Cray 3, canceled its order for the $30 million machine in December. The laboratory said it was tired of waiting for the technical wrinkles to be smoothed out of the supercomputer. Telephone calls to Cray Computer executives were not returned.

. . . As Cray Research gets RISC-y

Cray Research, Inc. confirmed at last week's Supercomputing Europe '92 conference that it plans to use Digital Equipment Corp.'s 64-bit Alpha reduced instruction set computing microprocessor for its first-generation massively parallel system. The company is developing a system, slated to be introduced next year, with a projected peak performance of more than 100 billion floating-point operations per second.

NEC colors its notebook

NEC Technologies, Inc. is expected to announce within a month a color version of its Ultralite line based on Intel Corp.'s 25-MHz 80386SL chip, according to a source close to the company. The system, which will have an active-matrix screen, should weigh 7.5 pounds and will initially come with an 80M-byte hard drive and a 1½-hour battery life — all for $6,500.

DEC to build own PCs

DEC announced last week that its Taiwan manufacturing facility will begin designing and producing personal computers. DEC has previously relied on outside contractors for its PC production, but according to Frank Michnoff, an analyst at Westport, Conn.-based Meta Group, Inc., "Other players don't always have your best interest at heart. This is a major signal to the market that DEC is serious about PCs."

Short takes

New product showings from **Canon U.S.A., Inc.** include a Bubblejet combination color copier/scanner/printer, a high-end 60 page/min. machine and a full-color fax machine . . . The advertising spat between Lone Star denizens **Compaq Computer Corp.** and **Dell Computer Corp.** has been settled out of court. Nobody's talking, but Dell is paying an undisclosed amount to Compaq . . . **Wordstar International** could become a black star if its fiscal hemorrhaging continues. Second-quarter results were a net loss of $3.3 million . . . **Apple Computer, Inc.** will open Apple Market Centers in Boston, San Jose, Calif., Chicago, Phoenix, Atlanta and Philadelphia this year . . . **Everex Systems, Inc.** last week announced reductions of up to 32% on its Step and Tempo I486-based PCs.

When CIOs become expendable

CONTINUED FROM PAGE 1

This further squeezes tenure expectancies of CIOs, who are already under siege. In a Deloitte & Touche survey released last week, 36% of the companies polled said their previous CIO had been dismissed or demoted (see story below).

At Rubbermaid, Inc., "We downsized corporate MIS to the point where we just eliminated it," said Joseph Balnave, Rubbermaid's former corporate vice president of MIS, who essentially eliminated his own job. "Each of our businesses was pretty autonomous in four different market segments, and it didn't appear there was a need to have a corporate function for [IS] coordination and policy."

After seven years as Wooster, Ohio-based Rubbermaid's IS chief, Balnave is now director of MIS at Ferro Corp., a Cleveland-based materials manufacturer.

Rubbermaid is one of several companies that have transformed corporate headquarters into holding companies, greatly reducing or eliminating the need for a high-level executive to set IS policy. Such companies may retain a limited corporate IS staff with a director- or manager-level employee in charge of headquarters IS functions, possibly in addition to other areas.

"I think there is a certain holding company mentality that is coming back," said Larry DeJarnett, a vice president at Chicago-based consulting firm A. T. Kearney, Inc. "Whether you need a CIO in that situation is arguable."

Former VP Balnave *downsized himself out of a job*

Rubbermaid executives said IS groups in their business units have been faster and more responsive than the centralized organization was.

"With some of the quick-response customer systems that have gone into effect, I seriously question if we could have done it at corporate without creating a mammoth organization," said Don Awbry, senior vice president of technology and environmental affairs. "It's an issue of [business unit] ownership, as opposed to 'I'm from corporate and I'm here to help.' "

At United Technologies Corp. in Hartford, Conn., former Vice President of IS John Hammitt once commanded 11 direct reports. Today, the $22 billion diversified manufacturer has just three corporate IS staff managers, led by Ulf Anderson, director of corporate IS [CW, Jan. 27].

European manufacturing giant Asea Brown Boveri, Inc. (ABB) recently restructured its U.S. IS management in the image of its parent, which conducts a $27 billion global business with just 100 people at headquarters in Zurich. The position of Gregory Buoncontri, vice president of information management services, was eliminated, with IS authority dispersed among units of ABB's $6 billion U.S. enterprise.

"It is in keeping with the way the rest of ABB functions," a company spokeswoman said, noting that the corporate staff at Stamford, Conn., headquarters has shrunk by 90%.

"I don't know of a business today that isn't looking at separating [decisions] out from a corporate hierarchy into smaller pieces," said Leonard Tenner, CIO at Hewitt Associates, a Lincolnshire, Ill.-based consulting and actuarial firm.

Autonomous business units are increasingly reluctant to support centralized functions, especially if they involve expensive technology decisions. At Rubbermaid, "each general manager was held totally accountable for their own bottom line," Balnave said. "Why should they want to support a corporate organization that they had no control over?"

Shaking all over

Recent IS management shifts

Company	Former IS chief	New IS chief
Rubbermaid	Joseph Balnave, Corporate Vice President, MIS	Otto [illegible], Manager, Analysis Planning
United Technologies	John Hammitt, Corporate Vice President, IS	Ulf Anderson, Director, Corporate IS
Asea Brown Boveri	Gregory Buoncontri, Vice President, Information Services	Jean [illegible], Director, Corporate and Application Services
Alco Standard	Maxwellian Gregory, Vice President, MIS	Betsy Gravett, Director, MIS and Personnel

CW Chart: Michael Siggins

Swinging on a weak vine

For CIOs, it is a jungle out there.

That oft-held perception found some quantitative backing last week in the results of the annual Deloitte & Touche CIO survey. For the second straight year, involuntary CIO departures increased, many hastened, no doubt, by severe budget and business pressures.

The position of CIO "is a much less forgiving environment today," said Kathryn Hayley, the Chicago-based Deloitte & Touche partner in charge of the survey. "As organizations look to the bottom line, there is probably less patience and tolerance than there was a few years ago."

Hayley's thoughts were echoed by former Time Warner, Inc. CIO Donald Winski, who left the entertainment and publishing firm last year by mutual consent. "In a recession, more of a controller mentality takes over because when there's no revenue growth, you go after costs," said Winski, now an independent consultant.

Bad career news in the survey was not limited to the top IS ranks. Of applications development professionals who left their jobs in 1991, 15% left involuntarily — up from 11% in 1990. "Companies needed to do some downsizing, and people who weren't performing very well were let go," Hayley said.

The average IS budget increased by 3%, slightly lower than the rate of inflation. In addition, 25% of CIOs said they expect their budgets to be cut this year, up from 20% in last year's survey.

The trend toward smaller computing platforms came through loud and clear. Respondents said the percentage of applications that are mainframe-based would plummet from 68% to 44% in the next two years. Several distributed technologies were cited as alternatives.

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CA sues bank over licensing differences

BY JOHANNA AMBROSIO
and NELL MARGOLIS
CW STAFF

BOSTON — Computer Associates International, Inc. has filed a lawsuit that charges State Street Bank and Trust Co. with operating as a service bureau using CA software without paying proper licensing fees.

The action came to light last week during the much-publicized legal battle between CA and Electronic Data Systems Corp. However, CA Executive Vice President Arnold Mazur said in a telephone interview that the State Street suit is completely unrelated to the EDS action and that CA is not pursuing a strategy of taking users to court.

The EDS suit "is in a class by itself," and CA is not going through outstanding licenses looking for violations, technical or otherwise, Mazur said.

The lawsuit against State Street, which was filed here Oct. 30, 1991, charges that the bank owes CA back royalties of at least $8 million; CA is also seeking other monies for penalties and fees. State Street, in addition to being a bank, provides financial and accounting services to customers.

The legal briefs stated that the bank signed licensing agreements in 1980 with Applied Data Research, Inc. — a company that CA acquired in 1988 — for packages including the Datacom database management system, Dataquery, Data Dictionary and Librarian. In 1985, according to court documents, that agreement was amended to allow State Street to run that software and other packages "in a time-sharing, service bureau and/or remote batch environment" with a fee structure that fluctuated depending on how many customers State Street had.

CA alleged that State Street only paid licensing fees that entitled it to run jobs for 15 customers, although it has more than 15 clients. Furthermore, the complaint said, the bank ran some 50 software packages in time-sharing mode that were only supposed to be used for the bank's own internal business. As a result of the dispute, CA has "terminated" the license agreements of the disputed software packages, and it stopped providing support on Nov. 22, 1991. State Street has since received a court order restoring support at least until the hearings are over.

State Street lawyers, spokesmen and information systems executives refused to comment beyond confirming that the suit has been filed and that they are defending it vigorously. According to the bank's court statements, however, CA has not provided details of how State Street's use of the software violates the license agreements.

CA and State Street also differ over how vigorously they have tried to settle their differences. CA said it has made "various efforts" to resolve the dispute with the bank, while State Street said CA had never before asserted that its software was being misused or that copyrights were being infringed.

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Compaq to plug in newest Intel chip

BY CAROL HILDEBRAND
CW STAFF

HOUSTON — Matching the "in like a lion" spirit of March, Compaq Computer Corp. is expected to introduce on the third of next month both a server and a desktop box based on Intel Corp.'s forthcoming dual-speed coprocessor.

Sources said the entry-level Systempro and Deskpro Lites are expected on the same day that Intel formally announces the first I486-based P24, which will run at a 25-MHz external clock speed while doubling that speed internally. The machines will essentially be plucked from the Systempro LT and Deskpro modular lines and goosed up with the new chip, sources said.

Compaq, which is struggling after taking a drubbing pricewise from smaller, nimbler personal computer vendors, badly needs a shot in the arm. Its recent massive restructuring has many industry watchers wondering whether the company's new focus on price will come at the expense of its reputation for technical excellence.

Analysts agreed that an innovative product would give the company a much-needed boost. "Even if millions of people don't buy the product, it's important to Compaq to be the first with the newest. The old Compaq used to do it all the time," said Richard Shaffer, an analyst at Technologic Partners.

While such a product would be a first, there is some skepticism in the industry as to the viability of boxes based on the P24.

"We have lots of Systempros because we have a need for that kind of horsepower on LAN servers," said Glen Jurmann, section manager of office technology at Baxter Healthcare Corp. "So a Lite Systempro would not do much for us."

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Our NeXTstep™ development environment is far more than a mere windowing system or a programming toolkit. It's a true object-oriented world all the way down to the system level.

Here, you can write sophisticated, intuitive programs in a fraction of the time they would require on any other platform, using tools you've never had before.

NeXTstep's Application Kit™ provides the objects common to most programs, like windows, scrolling regions and buttons. It also includes objects for printing, faxing, opening/saving files, storing data, choosing fonts and colors, processing sound, even communicating between applications. All complete with standard dialogs.

And NeXTstep's Interface Builder revolutionizes the way custom applications are built. You use the mouse not only to place and resize your interface objects, but to change their attributes and define how they inter-relate – all without writing code. Interface Builder also helps manage every aspect of your application and every bit of your code (both C++ and Objective-C are supported).

To put even greater power in your hands as a developer, the NeXTstep object library is completely open. That is, you can customize the behavior of any object via subclassing, and you can create your own custom objects that instantly become as easy to work with as the ones we supply.

NeXTstep's use of objects can save enormous amounts of time in the future, too. Instead of starting from scratch with each new project, you can reuse existing objects. And, when it's time to update, you don't have to search through endless lines of code – you simply modify one of the objects.

Naturally, the applications that you create with NeXTstep deliver the many benefits unique to NeXT workstations. They are easy to use and consistent, so training time is minimized. They offer full access to all system services. Plus they integrate flawlessly with other custom software, multimedia electronic mail and the "best-of-breed" off-the-shelf solutions.

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[illegible] trees die needlessly.
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D&B SOFTWARE
Dun & Bradstreet Software

ha!

Semiconductor group issues report, disbands

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — A blue-ribbon committee commissioned by Congress in 1988 to find ways to save the U.S. semiconductor industry issued its third annual report last week and announced it would disband with most of its proposals yet to be implemented.

"We've run out of ideas. We've done all we can do with the present charter," said Ian M. Ross, chairman of the National Advisory Committee on Semiconductors (NACS).

Nevertheless, the final report was not lacking in ideas, containing 73 recommendations ranging from the grandiose (reduce the federal budget deficit) to the detailed (accelerate depreciation of semiconductor equipment).

Ross acknowledged that the U.S. position in electronics has steadily worsened; the U.S. share of the $751 billion market dropped 14 percentage points since 1985. "This decline has continued beyond the loss of consumer electronics markets and now threatens traditional U.S. strengths in computers and communications," he said.

Ross said the U.S. forfeiture of the flat-panel display industry to Japan bodes ill for the U.S. computer industry. He added that computer companies have "a huge stake" in that technology.

At a press conference, Ross sidestepped suggestions that the Bush administration had not supported most of the group's proposals by saying, "The nation has been slow to recognize the situation in industrial competitiveness."

The NACS made recommendations in five areas:

- Encourage industrial development through tax incentives and regulatory policies that more closely match those of competitors.
- Stimulate high-volume electronics manufacturing, especially in emerging markets such as intelligent vehicles and highway systems, broadband communications and advanced displays.
- Draw up and implement "road maps" for speeding the development of semiconductor and manufacturing technologies.
- Form consortiums and alliances to develop technology and products and re-examine antitrust barriers to cooperation.
- Improve manufacturing skills through education, training and increased research in manufacturing systems.

Mark Rosenker, a vice president at the Electronic Industries Association, said the NACS had served a useful purpose in spotlighting some important industry issues, but the group's demise is not cause for great concern.

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INTERGRAPH
Everywhere You Look

Sun spotlight on publishing arena

BY MARYFRAN JOHNSON
CW STAFF

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc.'s Sunpics printing and imaging business this week will unveil Newsprint XP, a new software technology for the high-end publishing market that allows users to print large, high-resolution copies of documents from any network workstation.

The XP software will be available for licensing from Sun in April. It allows devices such as image setters, large-format plotters and high-resolution laser printers to work efficiently in a distributed computing environment — without having to add more system memory.

Initially, Newsprint XP can only be used in environments using the Sun Solaris 1.0 operating system. In future releases, however, company officials said it will also run under other Unix operating systems.

Sun claims that Newsprint XP offers performance benefits and cost savings greater than traditional Adobe Systems, Inc.'s Postscript printing by allowing users to store high-quality fonts anywhere on the network and access them through true what-you-see-is-what-you-get imaging.

"This is a good move for Sun," said Bob Fennell, an analyst at Dataquest, Inc. in San Jose, Calif. "Sunpics is promoting the speed of Sun workstations, the reduction of memory costs and allowing licensees to maintain their unique qualities."

The product extends the capabilities of Sun's Newsprint 2.0 software with high-performance banding technology, which takes a raster image, breaks it into "bite-size" chunks to send over the network and reassembles it on the receiving end.

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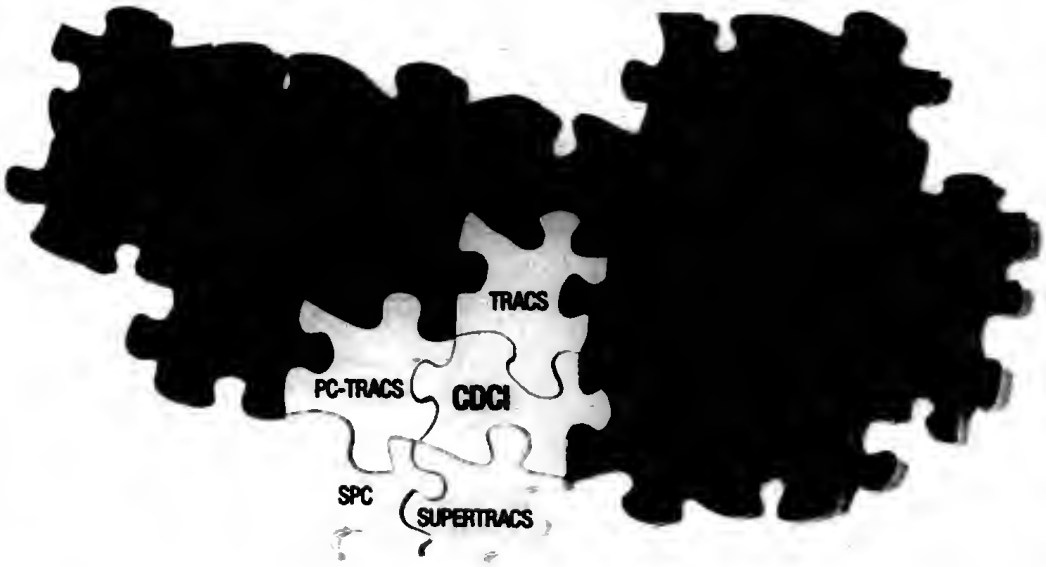

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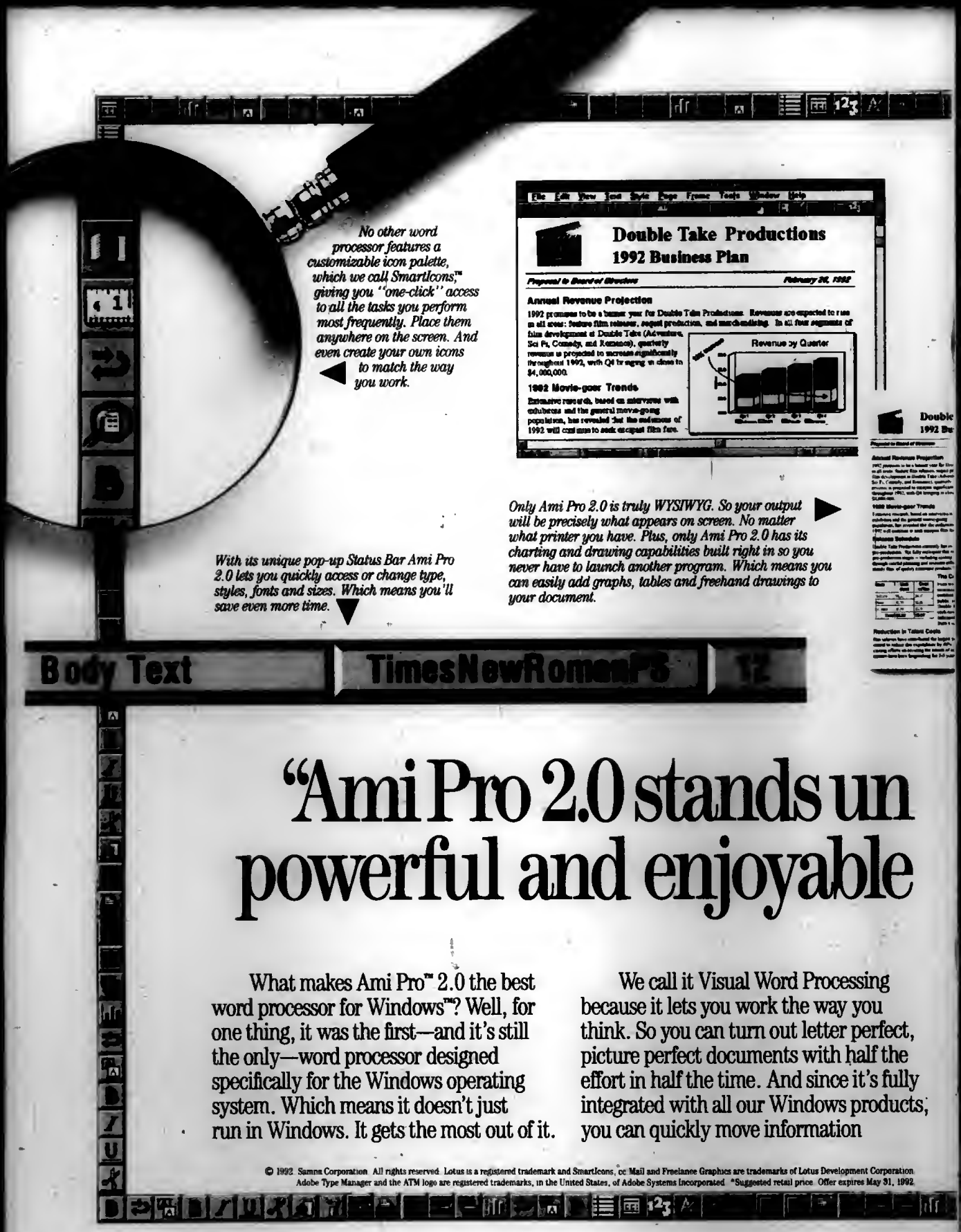

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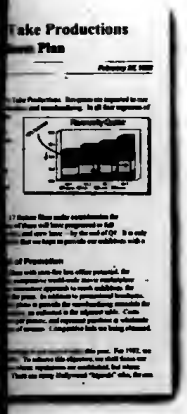

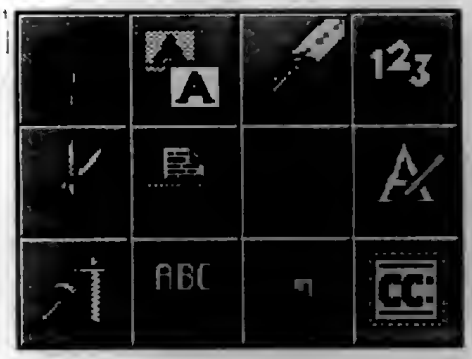

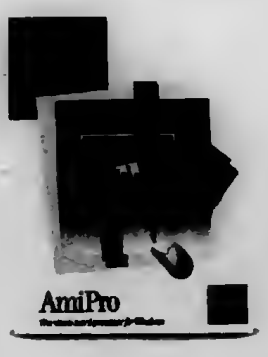

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—PC Magazine 11/12/91

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ADVANCED TECHNOLOGY

TECH TALK

Movie machine in store

■ Videotape retailer Blockbuster Entertainment Corp. and IBM have collaborated on the development of a movie station that enables video store customers to preview titles and retrieve reviews from a database on compact disc. Customers will also be able to look up movies by title, star, director, subject matter and rating. The movie stations include an IBM Personal System/2 running OS/2, an IBM 8516 touch display and Intel Corp.'s digital video-interactive compression technology. Blockbuster is testing the movie station in a store in Boca Raton, Fla., to determine whether to roll it out to all of its stores.

Supercomputer setup

■ The National Center for Supercomputing Applications (NCSA) in Champaign, Ill., has plans to install a Convex Computer Corp. C3880 on April 15. The machine is the largest memory system — with 2 billion bytes of physical memory — and the first arsenide gallium supercomputer to be set up at a National Science Foundation center, Convex said. The Convex C3880 will become the heart of NCSA's numerical laboratory, which explores interactive visualization, multimedia desktop video and virtual reality.

Mice in space

■ Gyration, Inc., based in Saratoga, Calif., introduced last week what it said is the first handheld wireless pointer that can control a cursor on a computer monitor while the pointer is manipulated in free space. In other words, the Gyropoint Remote performs like a conventional mouse without a wire attached, the company said. Gyropoint Remote uses gyroscope technology developed by Gyration that allows a device to sense motion internally rather than through contact with a rolling ball, as in a mouse, or external sensor, as in some ultrasonic and magnetic feedback systems.

Computer contends for checkers title

With a database of 20 billion moves, Chinook may be crowned the world's best player

BY MICHAEL ALEXANDER
CW STAFF

Tinsley the Terrible and Chinook are in training for what some experts believe will be the bout of the century — perhaps of all ages. In August, the two will square off in the World Checkers Championship in London.

Tinsley the Terrible is Marion Tinsley, a college math professor from Tallahassee, Fla., who is undisputedly the best checkers player in the history of the game. In 40 years, he has lost only five games out of the thousands he has played in tournaments and exhibition matches. He earned his sobriquet for his forceful, dominating style of play.

Chinook, hailing from Edmonton, Alberta, is a checkers-playing computer program, good enough to take second place behind Tinsley in the U.S. National Open in 1990. Chinook is so formidable that some checkers-playing experts said they believe that it will one day be capable of playing checkers perfectly.

"It is without question the strongest checker-playing program there is," said Herschel Smith, one of the directors of the International Checker Hall of Fame in Petal, Miss. "In a few years, it will be unbeatable."

Checkers expert

Chinook is the brainchild of Jonathan Schaeffer, an associate professor of computer science at the University of Alberta in Edmonton. He has been working on the program since 1989, with help from fellow professors Joe Culberson and Duane Szafron, students Paul Lu and Brent Knight and Robert Lake, a programmer analyst.

The team is busy fine-tuning Chinook for the title bout, which will consist of 40 games played over a 10-day stretch. Although Chinook is good enough to beat most top-rated players, "Tinsley is as close to perfection as you can imagine in a human checker player," Schaeffer said.

Chinook was developed in C language and currently runs on a Silicon Graphics, Inc. workstation. For the title bout, however, Schaeffer and his team said they hope to acquire a faster and more powerful machine.

"When the program is thinking, it analyzes its moves, the opponent's responses and its responses to the opponent's responses," Schaeffer explained. "Currently, the program is averaging about 20 moves ahead. Each factor of two in computing power means the program can look an additional move ahead."

Schaeffer and Norman Treloar, a checkers consultant who is helping test and develop the program, are trying to put more checkers-playing smarts into the computer as well.

John Gerson

"The program makes a move in the short term that it thinks is good but has long-term harmful consequences," Schaeffer said. "We have to add more knowledge to be able to prevent us from making those types of moves."

The third component to improving the progam is adding to its databases. The team has already plugged into a database every conceivable move — 20 billion positions in all — on a board with seven or fewer men. When the game gets to that point, the computer can calculate the outcome — win, lose or draw — with 100% accuracy, Schaeffer said.

The next step is to solve every position when there are eight pieces on the board. That is critical because four-against-four positions arise most frequently in games between evenly matched players.

"The problem is that there are 109 billion positions in an eight-piece database," Schaeffer said. "As of this moment, we have successfully computed 4.3% of them." At the current rate, only one-quarter to one-third of the eight-piece database will be finished in time for the August 1992 match. The problem could be completed in time for the match with a faster machine.

Schaeffer's ultimate goal is to "solve" the game of checkers — that is, to be able to compute every possible position on a board at the start of a game. With 24 pieces on the board, that works out to 500 hundred billion billion combinations.

Chinook's checkers-playing skills can also be applied to a large number of other types of problems that require searching for an optimal answer, Schaeffer said.

For humans only

Although Chinook earned the right to play in a world championship by taking second place in the U.S. National Open in 1990, the game's top sanctioning bodies will not permit the computer program to hold a world title.

The English Draughts Association has refused to sanction any checkers match played between human and machine. The American Checker Federation (ACF) also refuses to recognize a computer program as a world champion, but it has devised a new "human vs. machine" title to accommodate Chinook and programs like it.

That decision came after Marion Tinsley, the world's top player, resigned his title in 1990 to protest the ACF's initial refusal to sanction matches between humans and computers. Today, Tinsley holds the title of honorary world champion emeritus, given to him by the ACF. "We know eventually, after Dr. Tinsely dies, there'll be nobody else that we know of that could possibly beat a machine," said Charles Walker, ACF secretary.

"I'm a little bit disappointed in the checker-playing fraternity's feeling about this," said Herschel Smith, one of the directors of the International Checker Hall of Fame in Petal, Miss. "I think it is a case of 'If you don't understand something, then oppose it.' "

Jonathan Schaeffer, Chinook's programmer, said it would be a "tremendous success" to battle Tinsley to a draw after 40 games. "It is inconceivable that we can play 40 games without making a mistake," Schaeffer said. "We expect him to win at least one or two."

MICHAEL ALEXANDER

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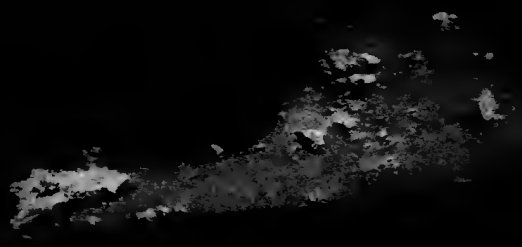

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EDITORIAL

Torn parachutes

Two weeks ago, Microsoft reorganized President Mike Hallman out of a job. Don't weep for Hallman, though. The stock options he accumulated during his less than two years at Microsoft will make him $10 million richer.

Contrast that with IBM Japan, which is run like a quintessentially Japanese company. Late last month, IBM Japan also took drastic measures to deal with a perceived management problem. It cut the salaries of about 30 of its top executives and froze salaries of 300 more managers. "We have to clarify management responsibility," a spokeswoman told *The Wall Street Journal*. Translated, that means IBM Japan's managers have been told to sell more products or make less money. Not a bad philosophy, is it?

Not to single out Microsoft, which, after all, has delivered excellent shareholder value. How about IBM, which gave John Akers a 43% pay hike in 1990, even as the company's market share was being eaten away? Or Lotus, which paid Jim Manzi $26 million in 1988 as profits dropped 15%?

Golden parachute arrangements like this have given the U.S. auto industry a black eye, sucking profits out of factory investment and into expensive homes. The same kind of myopic vision shouldn't tarnish the U.S. high-tech industry, arguably this country's last, greatest hope to compete internationally.

Japanese companies typically pay the CEO no more than 10 to 15 times as much as the lowest paid assembly line worker. At U.S. firms, the difference can be 100 times or more (or 1,000 times, in the case of Lotus in 1988). The Japanese expect their leaders to take full responsibility for failure, whether it's the prime minister, the CEO or the baseball manager. U.S. firms slash R&D and lay off factory workers in order to preserve executive bonuses.

No one should dispute the right of anyone to negotiate the best compensation package they can get or of corporations to pay top dollar to managers who are worth it. But pay should be tied to long-term performance and success against stated management goals. Consider the message it sends to employees to trash an executive in public (as Microsoft officials did), while sending him away with more money than he can ever possibly spend.

As the presidential primary season begins and the anti-Japan rhetoric starts to fly, let's not lose track of a basic fact: Executive compensation at many U.S. firms is still wildly out of line with corporate performance. This disparity damages morale, eats away profits and makes us an international laughingstock. The computer industry, which should be an exception, is beginning to look more and more like the rule.

Paul Gillin, *Executive Editor*

LETTERS TO THE EDITOR

Not hard to con

It would seem reasonable that information systems professionals, having been exposed to so much hype and blasts of hot-air marketing, would have become fairly sober and hard to con by now. This sort of reflection struck me twice while reading the Jan. 27 issue of *Computerworld*.

First, I noted the angry letter claiming that while productivity tools such as CASE and fourth-generation language have been around for years without shrinking the backlog, object orientation (presumably considered a fresh approach) is the panacea. Object orientation was in fact introduced, as well as made commercially available, with the Simula language 25 years ago.

It's time to acknowledge that while we are still pioneering information technology, many "new" marketing offers include substantial recycled content.

With such thoughts in the back of my head, I went on to read in "Ernst & Young CASE quality service bows" that "development effectiveness" can now be bought as a "total quality management plan." The basic content is a reminder that CASE tools work much better if the developers understand the business context in which the applications will be used. What profound insight!

Arnt Otto Ostlie
Oslo, Norway

Big Brother's here

I am in complete agreement with Corinne Chaves' Viewpoint article, "The death of personal privacy" [CW, Jan. 27]. However, I feel the article should have addressed a more insidious practice: the ubiquitous use of one's Social Security number as a universal identifier.

Telephone numbers are very useful, except that people move and their addresses and telephone numbers change. Social Security numbers do not. This number was supposed to be used only for paying taxes. It was to be our personal number. The government was the first one to violate the privacy of this number. Look at your 1040 income tax form. Mine has my Social Security number printed on the mailing label. Is this how our privacy is being protected?

What is more frightening is the way most companies use it. The personnel department routinely uses the Social Security number as your insurance ID to file medical claims. This also makes it easy for a future employer to check your medical history.

Insurance companies routinely swap computer files to look for fraud by individuals filing duplicate claims with different companies. Your new company can also have access to that file and possibly deny your employment based on the types and frequency of medical claims you file. George Orwell's *1984* and "Big Brother is watching you" is coming, albeit a little late.

I feel laws should be passed to eliminate the widespread use of the Social Security number as a common identifier.

Jeff V. Pulver
Neshanic Station, N.J.

Viruses listed

Regarding "Few real contenders in the current crop of virus fighters" [CW, Feb. 3], the Virus Information Summary List is not an "organization," as the article said, but a hypertext document written by Patricia M. Hoffman. The document details data about the known DOS viruses, based on research conducted by Hoffman. She has live, cataloged copies of all 800-plus viruses listed in her work, which is updated monthly.

The article listed a number of items to consider in choosing an antivirus product, but it failed to mention several that are more important.

The first is how effective the product is against the known population of viruses. One of Hoffman's unique qualifications is that she has been appointed by the Anti Virus Product Developers Consortium of the National Computer Security Association as the person to certify how effective the scanning products are. This is a vendor-paid service, and the results are listed monthly in her document. Those results paint a completely different picture from your article.

Many evaluations also consider pretty menus and "ease of use" to be more important than scanning, prevention and cleaning effectiveness. I disagree! Give me a program — even a clunky one — that is truly effective and keeps pace with the ever-growing virus population.

Roger F. Aucoin
Best Answers, Inc./Vaccinirus
Waltham, Mass.

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor in Chief, Computerworld, *P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail:* COMPUTERWORLD. *Please include a phone number for verification.*

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What's wrong with the computer crime statute?

Defense and prosecution agree the 1986 Computer Fraud and Abuse Act is flawed but differ on how to fix it

THOMAS A. GUIDOBONI

It has become an annual ritual, since the birth of the Internet worm, for Congress to consider amendments to the 1986 Computer Fraud and Abuse Act. At this point, the U.S. Department of Justice can be expected to advocate three things: an expansion of the federal role in the investigation and prosecution of computer crimes, the creation of new categories of offenses and harsher penalties, including perhaps the current darling of the department, forfeiture of property.

Since the law is of recent origin, was substantially revised in 1986 and proved more than adequate to prosecute and convict Robert T. Morris, there seems little justification for expansion of its coverage.

Nevertheless, if Congress is determined to review and revise the provisions of the act, there are several narrow, but significant, amendments that are clearly warranted. Of primary importance is the definition of terms. The core of the law suffers from a lack of clarity. Offenses are described by reference to "authorized" or "unauthorized access," yet these terms are not defined anywhere.

Perilously vague

In a universe that consists of broad computer networks, bulletin boards, E-mail and anonymous file-transfer protocols, and one in which permissions and rights are established by custom, usage and private understandings, a person is left to speculate at his peril as to what conduct is permitted and what is prohibited by this vague language.

The Computer Fraud and Abuse Act should be amended to give precise content to the concepts of "access" and "authorization," thereby providing fair warning of illegal conduct.

A second change for the better regarding the act would be to create a distinction between those computer intruders who unintentionally cause a monetary loss and those who maliciously cause such harm.

The present law, as interpreted in the Morris case, recognizes no such distinction. This is contrary to long-standing notions of fairness in our system of criminal law, which acknowledges that between two persons who cause the same harm, the one who intended that result is more culpable than the one who did not.

A third part of the statute that needs revision relates to computerized medical records. It is too broad because it includes as felonious conduct the unauthorized access to such records that "potentially modifies or impairs" medical treatment or care. Virtually every unauthorized access to computers containing medical records carries this potential. A better solution would be simply to make any "unauthorized access" of computerized medical records data a misdemeanor, with the intentional modification or destruction of such data designated as a felony.

Amend, but don't expand

These slight but important amendments would serve to clarify and improve a basically sound law without stifling the creativity of persons akin to those who have been responsible for many of the advances in computer technology in this country. More expansive revisions are ill-advised, as they may unnecessarily encroach on evolving privacy and free-expression interests.

A broadening of federal involvement is also inappropriate. Nearly every state has enacted laws against computer fraud and abuse and, as Congress recognized in 1986, federal jurisdiction should be limited to cases where there is a compelling federal interest. This might include instances where computers belonging to the federal government or to financial institutions are involved, or cases where the crime itself is interstate in nature. Furthermore, other computer crimes should be left to prosecution by the individual states, as is presently the case.

In sum, the 1986 Computer Fraud and Abuse Act would benefit from some clarification, but expansion of its coverage and wholesale revisions are both ill-advised and unnecessary.

Guidoboni is an attorney with Bonner & O'Connell in Washington, D.C. He represented Robert T. Morris in the Internet virus case.

SCOTT CHARNEY

The Computer Fraud and Abuse Act of 1986 was specifically tailored by Congress to respond to the emerging threat of computer crime. Although this statute is a major weapon in the federal government's prosecutorial arsenal, recent experiences indicate that the statute should be amended in several respects.

In the view of the U.S. Department of Justice, which has been articulated in testimony before the Senate Subcommittee on Technology and Law, the most important changes would criminalize the introduction of malicious programming code into computers, alter the focus of the statute from "access" to "use" and provide for the forfeiture of computers used in the commission of computer crimes. Additionally, the sentencing provisions of the statute must be amended to ensure that repeat offenders receive enhanced penalties.

The most significant need is to criminalize certain conduct that currently falls outside the ambit of the statute. As currently written, the computer crime statute prohibits intentionally or knowingly accessing a computer without authority (or, in some cases, in excess of authority). This language does not clearly criminalize certain conduct, which is unfortunately becoming more common, involving insertion of viruses into apparently legitimate programs that employees of recipient companies later load into a computer.

Gary Hodnett

In such cases, the only "access" to the computer is one that is authorized. The statute needs to be amended to criminalize conduct that intentionally dupes an innocent authorized party into spreading malicious programming code.

It is also important to change the focus of the computer crime statute from "access" to "use," and whether a particular use of the computer is authorized. The mere fact that someone is authorized to access a computer should not mean that he can use that computer with impunity, no matter what his actions or intent. Should a disgruntled hospital employee who inserts a virus into a computer and destroys thousands of patient records be immune from prosecution because he had the authority to access the computer?

To ensure that no well-meaning individual is subject to criminal sanctions because he misunderstood the scope of his authorization and used the computer in a way that ultimately turned out to be unauthorized, the statute should include a suitable intent requirement, i.e., one that says the prosecution must prove that the individual *knew* his conduct was unauthorized. Once it is proven that a person knowingly violated the law, his computer equipment should be subject to seizure.

The computer crime statute has six separate provisions and those that deal with sentencing also need amendment. Under current law, those who violate the statute more than once are only subject to enhanced penalties if they violate the same subsection twice. If an individual violates the computer crime statute by committing fraud by computer [subsection (a) (4)] and later commits another computer crime offense by intentionally destroying medical records [subsection (a) (5)], he is not considered a recidivist because his conduct violated separate subsections. In our view, anyone who is convicted of committing a computer offense and later uses his computer illegally should be subjected to enhanced penalties.

The department will, of course, press for other appropriate changes. We have noted in past congressional testimony, for example, that the provision protecting classified government information has such a specific intent requirement that it would be extremely difficult to obtain a conviction under the statute. As a result, prosecutors rely on another statute, which proscribes similar conduct with a lesser intent requirement.

As our experience with computer crime increases and technology advances, it is incumbent upon us all to reevaluate existing criminal laws to ensure that they effectively punish those who would intentionally misuse these new technologies. Amending the computer crime statute would be a significant step in the right direction.

Charney is chief of the Computer Crime Unit, Criminal Division, U.S. Department of Justice.

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IN BRIEF

Wider PS/2 distribution

■ IBM added more breadth to its Personal System/2 distribution with the introduction of two new remarketing programs. The Associated Remarketer Program allows value-added resellers (VAR) to purchase PS/2 products from IBM-approved sources, while the Authorized Distributor/VAR Program enables resellers to sell specially configured PS/1s.

■ The Software Publishers Association (SPA) recently announced a settlement and a record year. The settlement came against Martinez, Calif.-based Discovery Toys, Inc. The terms of the settlement require Discovery Toys to create companywide anti-software-piracy policies. The SPA also stated that 1991 was its busiest year so far, with 33 lawsuits filed and 75 audit letters and 561 cease-and-desist letters distributed.

■ Direct-access support for Microsoft Corp. customers who are hearing-impaired was announced recently. Available immediately, the service uses Telecommunications Device for the Deaf (TDD) technology. Users can schedule appointments with support staff members, who will return calls using TDD equipment. The TDD number is (206) 635-4948.

Notebook prices: How low can they go?

ANALYSIS

BY MICHAEL FITZGERALD
CW STAFF

Start the music — it's limbo time in the notebook pricing market once again!

Between now and Comdex/Spring '92 in April, users and analysts said they expect to see a slew of price cuts. In addition, there may be some feature adding by a variety of vendors hoping that differentiation will boost their share of the SX notebook market as it plunges toward commodity status.

"The lower the bar goes, the more vendors seem to want to crawl," said John Dunkle, vice president at Workgroup Technologies, Inc., a market research firm in Hampton, N.H.

Dunkle said he predicts prices on a 20-MHz Intel Corp. 80386SX notebook with a 60M-byte hard drive, IBM Video Graphics Array (VGA)-compatible screen and 2M bytes of random-access memory could fall as low as $1,300 by year's end. Today that system can list for more than $3,500.

Low Prices TEMPTATIONS BIG SALE

Vendor	Model	Chip	Storage	Price
TI	Travelmate 3000	Intel 20-MHz 386SX	40M bytes	was $2,799 now $2,349
			80M bytes	was $3,499 now $3,199
Compaq	LTE Lite 20	Intel 20-MHz 386SL	40M bytes	$2,899
			84M bytes	$3,599
DBC	320P	Intel 20-MHz 386SX	40M bytes	$3,217 or $2,175 (from catalog)

CW Chart. Michael Siggins

Major corporate users said a round of price-cutting would help their budgets immediately.

Continental Insurance Co. buys Toshiba America Information Systems, Inc. 386SX-based notebooks in one- or two-unit increments but at overall discount pricing competitive with the prices of mail-order clone maker Zeos International Ltd., said Joseph W. King, assistant vice president at Continental's Office and IS Group.

King said its incremental purchase plan "saves us money when they cut prices and allows me to switch much more quickly to new products."

Makes a difference

"It absolutely means something for us when retailers reduce prices," said Len Miller, chief information officer for the Personal Insurance Group at New York-based Metropolitan Life Insurance Co., which has some 13,000 Zenith Data Systems laptops. "We work off a percentage reduction of the retail price, so when vendors reduce prices, we see prices go down."

Continued on page 39

Qualified welcome for Lotus technology plan

BY ROSEMARY HAMILTON
CW STAFF

As Lotus Development Corp. doles out some details on spreadsheet strategies, users and analysts are reading the new plans as a mix of potential big hits as well as some ho-hum catch-up technology.

Craig Goldman, chief information officer at The Chase Manhattan Bank NA in New York, said he is particularly interested in Lotus' claim that it will provide improved and consistent user interfaces across its spreadsheet line as well as other applications.

"Our challenge as technologists is to present [applications] in a way that mere mortals can use and not feel intimidated by," he said. "Frankly, they are right-on as far as their thrust to standardize the user interfaces and make them consistent."

Goldman also said he has more faith now than in the past in Lotus' ability to meet its promises. "There's a growing sense of confidence that they won't blow major dates like they have," he said. "I think the [1-2-3 for] Windows introduction sensitized the whole corporation to how important it is to not make commitments you can't meet."

In a recent meeting with analysts, Lotus outlined a plan to bring a number of changes to the user interface as part of a program called "Working Alike."

The idea is a "complete rethinking of the graphical user interface [that is] not in any way a port of a character-driven system," according to John Landry, Lotus' chief technology officer. This would include enhancements to existing functions, such as the Lotus Smart Icon, and new features.

Catering to the user

Landry said the company will provide context-sensitive menus that will change the menu bar selection to reflect a user's choice from the menu. In addition, object information boxes are planned. For instance, a user could call up a box describing the attributes of an object.

Landry said Lotus will improve the Smart Icons so that users can cluster a number of related icons and select an entire group instead of calling up one icon at a time.

Meanwhile, some of the plans for new 1-2-3 releases are considered necessary — but hardly innovative — moves.

The promised release of the so-called Predator, a new 1-2-3 for DOS, as a "full graphical user interface system" could be a boost for current DOS users, but it also runs the risk of being perceived as a me-too product.

"It sounds like what Borland did a year ago, and it's called Quattro Pro," said Sheldon Laube, national director of information and technology at Price Waterhouse.

Will Fastie, a personal computer software analyst at Alex. Brown & Sons, Inc. in Baltimore, said the expected Predator sounds like Lotus' way of saying, "OK, fine, we'll give this to you, too."

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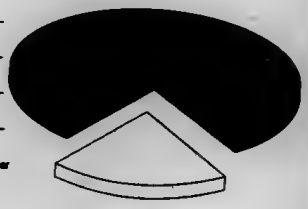

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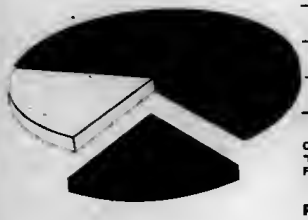

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Dell System 320N: Good speed, very portable

Technology Analysis — A roundup of expert opinions about new products. Summaries written by freelance writer Emily Leinfuss.

Seen by reviewers as a good value in a reasonably fast machine, Dell Computer Corp.'a Dell System 320N provides strong battery life and portable dimensions.

Performance: *Infoworld* described the 320N as being a middle-of-the-road performer, passing speed tests unremarkably. However, other reviewers noted its performance as fast.

Ease of use: Thumbs-up for the machine's outstanding portability — it is a small box weighing only 6.7 pounds. However, the system's screen is too small and offers only mediocre screen contrast.

Power supply: All systems are go on this notebook's battery life. It lasts well over three hours, and a maintenance battery even gives two minutes' leeway for putting in a new battery without quitting the application.

Design: The keyboard was praised by reviewers because it offers 85 keys, including an embedded numeric keypad, and has an ergonomic design.

Value: *PC World* named the Dell notebook ($2,499) its best buy. All reviewers noted the company's outstanding service and support policies as added value to the machine.

Dell System 320N

Reviews	Performance	Ease of use	Power supply	Design	Value	Overall
PC Computing 11/91	Fast	Poor durability, small display	Great charge life	Good size and weight	Good	Good value in a small, fast machine
Users						
Dale Beddome, Infoys, Inc.	Very good	Very good	Good	Good	Very good	Relatively reliable, good service
Analysts						
George Thompson, Datapro Research Corp.	Good	Good	Good	Good	Good	Solid system
Cheryl Carrid, Carrid & Co.	Good	Good	NC	Fair	Good	A little bulky

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment. *Infoworld* rating based on a 1-to-10 scale.

Vendor financial ratings

Analysts	Long-term stability	Short-term performance
David Guthrie, Morgan Keegan	Good	Very good

Dell Computer reported 1991 revenue of $546.2 million. Revenue for the first nine months of fiscal year 1992 was $604.1 million

Dell responds

Robin Kimsey, product marketing manager:

Ease of use: The 320N offers enhanced contrast capabilities. To make text easier to read, it ships with three large fonts as well as one standard-size font. The screen's 8.6-in. diagonal size is within tenths of inches of competitors'.

Performance: The 320N offers solid performance (20% to 25% faster than 16 MHz).

Northgate Slimlite: Solid but slow

Northgate Slimlite 386SX

Reviews	Performance	Ease of use	Power supply	Design	Value	Overall
PC Computing 11/91	Not exceptional, poor video	Very good keyboard	Disappointing battery life	Great weight and size	Good price	Very usable
Users						
Jim Dodd, Onset Computer Corp.	Very good	Very good	Very good	Good	Good	Very pleased
Michael Smith, Upsher-Smith Labs, Inc.	Good	Good	Good	Good	Very good	Very good
Analysts						
Cheryl Carrid, Carrid & Co.	Good	Good	NC	NC	Good	OK

Key: Very good, Good, Fair, Poor. Reviewer evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on telephone survey. NC: No comment. *Infoworld* rating based on a 1-to-10 scale.

Vendor financial ratings

Analysts	Long-term stability	Short-term performance
Laura Ledermann, William Blair	Fair	Very good

Northgate Computer Systems reported net sales of $37 million and a net loss of $438,000 for the third quarter ending in September 1991. Fourth-quarter figures are not yet available.

Northgate responds

Dudley Stevenson, director of marketing communication:

Power supply: The battery life of the existing notebook has been extended.

Performance: We are not satisfied with the performance standards of the Slimlite and are addressing those issues in the new version of the notebook, which we are currently developing.

Not rated among the fastest notebooks, Northgate Computer Systems, Inc.'a Northgate Slimlite is very portable. Its solid design includes a full keyboard. But the battery life leaves something to be desired, according to reviewers.

Performance: Northgate's Slimlite is not a power user's dream. Its performance was described by one reviewer as "poky," by another as "usable" and by another as doing nothing exceptionally well.

Ease of use: Slimlite's most lauded attribute is its small size and portability. The keyboard uses a full layout with two rows of function keys grouped next to the escape key, and the screen was described as being too small but clear and bright.

Power supply: The worst attribute of this machine is a "painfully short battery life," clocking in at far less than two hours, *PC World* says. A recharge takes slightly more than two and a half hours.

Design: Weighing in at 7.4 poufds and measuring 8.3 by 11.1 by 2 in., Slimlite fives up to its name and slips easily into a crammed briefcase for easy storage.

Value: Despite its middle-of-the-road performance, Slimlite is deemed to be a fairly good value, reviewers said. It's priced right at $2,999 and the company's 24-hour, toll-free technical support is highly rated.

COMMENTARY

Jesse Berst

Focusing on client/server

I recently attended a client/server seminar where I talked with dozens of vendors and end users. I came away convinced that the time is right to take a fresh look at this architecture.

I know, I know — "client/server" has long been an overused buzzword. But this vague term is finally coming into clear focus. These days, the typical project uses Microsoft's Windows on the client and a SQL database engine on the server.

As client/server moves into the mainstream, corporations are jumping on the bandwagon. For instance, an East Coast reinsurance firm has 30 analysts accessing DB2 data via Excel spreadsheets. Or how about the West Coast vehicle inventory system that will process 400,000 vehicles and 30,000 shipments each year? The client workstations run custom software developed with Powerbuilder and Visual Basic. The server runs Microsoft's SQL Server and LAN Manager.

Just to be sure we're talking the same language, client/server is not a back-end/front-end system, where the PC acts as a dumb terminal and the host does all of the work. And it is not a file server system, where the entire file is sent to the PC, which does the processing and then sends the entire file back.

Client/server model

Under the client/server model, the work is shared between host (server) and PC (client). The server processes database requests. The client takes the answers and works with them. Only the query and the answer travel back and forth over the network.

Under this scheme, both sides do what they do best. The host crunches the database queries while maintaining data integrity and security. And the PC uses its horsepower to analyze and format the data while providing a friendly interface. The friendly interface is where Windows comes in. In the last year, it has emerged as the standard way to put a GUI face on a client/server application.

Why the renewed excitement over the client/server concept? In a word, money. Client/server can often provide the capabilities of minis and mainframes at a fraction of the cost.

According to Forrester Research, the cost per seat is about $9,000 for client/server computing vs. $13,000 to $15,000 for mainframes and $25,000 for high-performance Unix systems. Numbers like these explain why client/server computing is expected to become the de facto standard for corporate computing by the end of the decade.

There are plenty of other advantages to the client/server approach:

- Easy-to-use Windows development tools that slash the time it takes to build applications.
- Access to data previously locked away on the mainframe.
- Better use of system resources.
- Better response time.
- Easier to use interfaces.

But enough good news. Those of you who want to move toward client/server computing face two major obstacles, one technical in nature and the other organizational.

The first hurdle comes from gaps in the technology. For instance, the products for the front-end client side are terrific, but there's a shortage of tools for the server side.

And today's systems don't do a good job of distributed processing. Distributed processing means the data can be scattered across more than one server. Most of today's SQL systems support only limited data distribution (or none at all).

Users also complain that PC-based networks can be unstable. You'll need to test your hardware platform with care before you put a mission-critical application on it. And once you get the LAN up and running, you may suffer from the shortage of administration tools. On a mainframe, you immediately know the cause of a problem. On a PC-based LAN, you may have a hassle tracking it down.

Organizational hurdles

Despite these current gaps, the technical barriers are falling rapidly. The following organizational obstacles, however, may prove harder to solve:

- Lack of standards. Yes, it's possible to hook up heterogeneous networks. But you're a better candidate for client/server computing if you already have standards for hardware and software.
- Application development headaches. Cobol programmers often have trouble making the transition to Windows programming. And if you get power users involved, they probably won't demand the consistency, care and rigor needed for mission-critical applications.
- Support problems. Once you distribute important applications and LANs to remote sites, somebody's got to take care of them. Who will?

These are just some of the issues you'll have to consider.

Berst is the publisher of Redmond, Wash.-based "Windows Watcher" newsletter, a monthly briefing service for software executives and corporate technology managers.

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Low-power chips extend notebook battery life

BY MICHAEL FITZGERALD
CW STAFF

There are some things one can count on in life: death, taxes and a portable computer's battery dying. Having a battery die when there is no AC power source around is annoying at best, but pieces are coming that will extend battery life.

For instance, Intel Corp. and Cyrix Corp. recently introduced notebook-specific, low-voltage chips that could lead to greatly extended battery life.

Intel, as part of its announcement that it will ship a version of its 80386SL power management chip that does not support external cache, said it plans to introduce this year new 386SL and 486SL chips that operate at 3.3V.

This would be part of Intel's expected 30 new "second wave" (386SL and all I486) chips this year [CW, Jan. 27]. Intel expects to ship between 4 million and 5 million of these chips by the fourth quarter.

The 3.3-V capability will greatly reduce the chip's power consumption, thus increasing battery life.

Cyrix began shipping low-power chips recently, hitting the 2.7-V level for its 87SLC and 87DLC math coprocessors. Cyrix claims that the designs are fully compatible with Intel's 386SX, 386SL and 386DX chips.

They also work with Advanced Micro Devices, Inc.'s existing low-power product line of chips, found in notebooks from companies such as AST Research, Inc. Cyrix marketing manager Glen Burchers could not confirm that the processor will work with the new PC/Chip from Chips and Technologies, Inc.

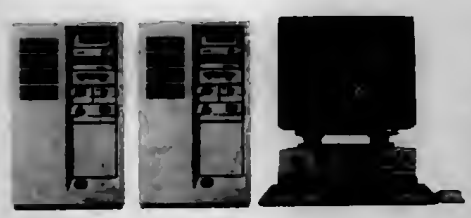
Still, observers said the notebook market has a long way to go before it can truly benefit from lower voltage processors and products such as Western Digital Corp.'s 3.3-V WD90C26 video controller. Until other system components are also designed with low-power requirements, there will be little or no savings, analysts said.

"The new voltage chips will have to await lower voltage components" before users will see longer battery life, said George Thompson, an analyst at Datapro Information Services Group in Delran, N.J.

Burchers agreed and said Cyrix's processor will ideally work with the notebooks under design today.

you heat?

of the new IBM RISC System/6000 models.



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IBM

Prices: How low can they go?

CONTINUED FROM PAGE 35

Recent signs of the looming battle come from Texas Instruments, Inc., which cut prices between 5.5% and 19% on all of its Intel 80386SX-based notebooks recently and announced a new 120M-byte drive.

At about the same time, Digital Equipment Corp. and Compaq Computer Corp. released new notebooks at aggressive price points, and Dell Computer Corp. chopped prices.

Zeos itself lowered the bar with its new 386+, a 6.6-pound 386SX notebook with 2M bytes of RAM that adds keyboard and mouse ports, a full VGA-compatible display and suspend/resume functions to its existing product, for a price of $1,795.

Cutthroat competition

The combination of price cuts and added features, such as larger hard drives and other twists [CW, Feb. 10], will be a constant through the next few months, as vendors prepare room for new products and respond to the vicious competition in the notebook marketplace.

"The trend that has been established now is that you bring out a new generation of product, but before you do that you have one, maybe two rounds of price-cutting in your product line," said Paul Zagaeski, a senior analyst at The Yankee Group in Boston.

Price considerations have affected new entries, too. DEC's foray into portable computing — the 320P notebook, a 6.4-pound machine based on Intel's 20-MHz 386SX chip — starts near the $2,000 mark.

Compaq's two new notebooks, the LTE Lite 20 and 25, use Intel's 80386SL chip, which is pricier than the 386SX. However, Compaq has priced the 25-MHz LTE Lites within $100 of its existing 20-MHz LTE 386S/20 [CW, Jan. 27]. Compaq will also offer 120M-byte hard drives on the high end of its LTE Lite/25 model.

Finally, as the 386SX notebook slips in status from last year's hot product to this year's yawner, some vendors may move their portable products away from the 386SX entirely; Compaq, for instance, will stop making the LTE 386S/20 by year's end. Librex Computer Systems, Inc. is expected to replace its 386SX line with SL-based notebooks at Comdex/Spring '92.

CA Dbfast seeks to make it easier to port DOS to Windows

BY CHRISTOPHER LINDQUIST
CW STAFF

GARDEN CITY, N.Y. — Leveraging the skills of programmers already well-versed in Xbase-based languages such as Borland International, Inc.'s Dbase, Nantucket Corp.'s Clipper and Fox Software, Inc.'s Foxbase can save you valuable time when moving DOS applications to Microsoft Corp.'s Windows platform.

To aid in this leveraging, Computer Associates International, Inc. has introduced an updated and reportedly more stable version of Dbfast, the Xbase language compiler for Windows it acquired with the purchase of Gensoft, Inc. Dbfast provides users with a means of porting Xbase applications directly to Windows without the programmer having to learn a new language, according to the company.

"It's a lot easier than having to retrain our staff," said Robert Zagars, a programmer/analyst in the personnel department of the Sarasota County government in Florida. Zagars has been using the product to port programs written in Clipper, including rate control and human resources applications, to Windows. The department made the move to the graphical environment in March 1991 and has found that some applications cannot be easily ported using C. Despite a few minor variances, "it performs as I expected it to perform," he said. "It's doing the job."

Kyle Capps, manager of microcomputer applications support at the University of North Texas in Denton, Texas, also originally bought Dbfast to port Clipper applications, but he is now using the product for initial development. One of the projects is a support tracking system that utilizes Dbfast's support for Novell, Inc. networks. "We recognized the need to have some Windows interfacing into the database files," he said.

After evaluating several alternatives, including Borland's Objectvision and Software Publishing Corp.'s Superbase IV, the company decided to go with Dbfast. "For the buck at this point, [Dbfast] is a pretty good tool," he said.

Dbfast requires Windows 3.0 and is compatible with Dbase III Plus source and data files and Clipper Summer 87 extensions. It also includes Dbase IV- and Foxbase-like extensions. It includes both an integrated development environment and a debugger. Free, unlimited runtime is provided upon purchase.

Dbfast is available now for a list price of $550.

The Old	The New
• Compatible with Dbase III+ both .dbf files and source code.	• Support for Windows Dynamic Link Libraries.
• Support for some Clipper 1987 extensions.	• DDE support.
• Support for Dbase IV- and Foxbase-type applications.	• Support for Windows objects such as buttons, pull-down menus and check boxes.
	• Multiuser version available.

CW Chart: Janell Genovese

Compaq cleans up its act in battery disposal

Program allows for EPA-approved dumping

BY MICHAEL FITZGERALD
CW STAFF

HOUSTON — Eckhard Pfeiffer will never be confused with Woodsy the Owl, but Pfeiffer, Compaq Computer Corp.'s chairman, gave the go-ahead recently to a program designed to keep Compaq portable users from being dirty birds when they dispose of environmentally hazardous nickel cadmium batteries.

Compaq's intent is simple: to take nickel cadmium batteries out of circulation when they die (usually after about two years of use). Compaq is not charging a fee for the program, which requires its users to call an 800 number, after which they are sent a postage-paid package addressed to an area dump that is approved by the Environmental Protection Agency to accept toxic waste.

Compaq users said they like the idea of the program. "We ought to have some sensible way to do" battery disposal, said Kevin Maloney, manager of technology planning and office automation support at Pepsi-Cola International, a Somers, N.Y.-based division of Pepsico, Inc.

Could be a pressing issue

Industry observers said they think disposal of toxic nickel cadmium batteries could become more of an issue. "Compaq's release was ... great PR, but eventually, it's quite possible that corporations will have to sort out their own toxic waste from ordinary office trash," said Peter Kastner, a senior analyst at Aberdeen Group in Boston. Kastner cited a similar program sponsored by Hewlett-Packard Co. to reclaim toner cartridges for laser printers.

Kastner added that Compaq's program "is not just hype. There is a need, and I believe over time, corporations will mandate that they recycle" these products.

Users generally agreed that they had given little thought to the issue of nickel cadmium battery disposal.

"This is a topic that, other than saying I should think about it every now and then, never really reached my agenda," said Len Miller, chief information officer at the personal insurance arm of Metropolitan Life Insurance Co., which has 13,000 users of Zenith Data Systems portables.

Miller said if Zenith Data offered a program for recycling batteries, he would certainly take advantage of it.

"There's always something else — we haven't thought about that and we should," said Stephen Anderson, information systems architect for the state of Washington's Department of Social and Health Services in Olympia. "We have 300 to 400 laptops, and that means we're looking at almost a ton of bad kinds of pollution in a year."

Anderson added that he does not think Compaq's recycling program would be a major selling point. "You still go for price and performance," he said.

The program is limited to Compaq portable users, the company said. For more information, call (800) 524-9859.

NEW PRODUCTS

Systems

Tatung Science and Technology, Inc. has announced internal storage capacity of more than 1G byte for its Compstation 40 Scalable Processor Architecture workstation.

The company announced a 535M-byte internal hard drive option for the Compstation 40, which supports two internal hard drives. A configuration with a 535M-byte drive costs $13,180.

The company also announced the availability of the Solaris 1.0 operating system for its Mariner 4I 25-MHz workstations.

Tatung Science and Technology
2060 Ringwood Ave.
San Jose, Calif. 95131
(408) 435-0140

Newtek, Inc. has begun shipping Release 2.0 of its Newtek Video Toaster software.

The Video Toaster card for Commodore Business Machines, Inc. Amiga systems incorporates a variety of video editing and animation functions. The software adds new effects, including real-time warping of video and mapping of video output onto a cube, soft-edge transitions and organic transition effects such as clouds, fire and pouring liquid. The luminance key mode has been improved to eliminate edging, and more fonts are included for character generation.

The software upgrade costs $395. Video Toaster cards, including the new software, cost $2,495. Stand-alone workstations incorporating Amiga technology are available.

Newtek
215 S.E. Eighth St.
Topeka, Kan. 66603
(913) 354-1146

Software Applications Packages

Wolfram Research, Inc. has released Mathematica 2.0 for the Microsoft Corp. Windows environment.

Release 2.0 of the technical computation software provides an interactive front end that allows users to mix text, graphics, sound and animation into single technical documents. The Windows version supports hypertext Help, cut-and-paste editing and other Windows features.

The software costs $995. Upgrades from DOS versions are offered for $125.

Wolfram Research
100 Trade Center Drive
Champaign, Ill. 61820
(217) 398-0700

Cardiff Software Corp. has designed Teleform for Windows 1.0.

The software runs under Microsoft Corp.'s Windows environment. It allows users to create a form, fax the form to a customer and receive the completed form by fax. Teleform then automatically stores the returned information in a database, using optical character recognition technology to minimize the amount of re-keying needed. The product also automates fax functions. It can remain active in the background while the computer runs other applications.

The product costs $995.

Cardiff Software
Building B
531 Stevens Ave.
Solana Beach, Calif. 92075
(619) 481-2255

Lotus Development Corp. has announced an upgrade of Lotusworks, its integrated applications package.

An improved user interface, an enhanced word processor and context-sensitive Help are among the key features in Lotusworks 3.0. Integration among the modules is improved, the company said. Lotusworks is intended for entry-level personal computer users. It includes word processor, spreadsheet, graphics and database modules.

The software costs $149.

Lotus Development
55 Cambridge Pkwy.
Cambridge, Mass. 02142
(617) 577-8500

Slate Corp. has announced the development of At-Hand.

At-Hand is a spreadsheet for Go Corp.'s Penpoint operating system. It allows users to write directly into cells in a 256- by 8,192-cell worksheet. It provides 15 types of charts and graphs and includes a scripting language. The product is compatible with major desktop spreadsheets.

At-Hand is priced at $295.

Slate
15035 N. 73rd St.
Scottsdale, Ariz. 85260
(602) 443-7322

Data storage

Rancho Technology, Inc. has announced superfloppy 21M-byte, 3½-in. disk drive subsystems for personal computers.

The "floptical" drives provide 25M bytes of unformatted storage space on each 3½-in. disk. The drives connect via a small computer systems interface controller and can also read standard 1.44M- and 720K-byte disks.

An internal version for AT/XT bus computers costs $750. External models and models for Micro Channel Architecture systems are also available.

Rancho Technology
Suite 109
8632 Archibald Ave.
Rancho Cucamonga, Calif. 91730
(714) 987-3966

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From the analyst's viewpoint, there's a task-oriented menu system. Just point, click, and command the SAS System's most popular applications...without syntax and without relying on MIS or your Information Center staff. ▼

MEETS YOUR APPLICATIONS DEMANDS.

The SAS System's integrated capabilities can be brought together any way you choose...for virtually *any* data-driven application: executive information systems...project management...financial analysis...report writing...applications development... computer performance evaluation...quality improvement...and much more.

OPTIMIZES YOUR COMPUTING RESOURCES.

The structural design of the SAS System means that you can run applications on a wide range of computing platforms—from micro to mainframe. More importantly, it offers the same functionality and look across all platforms.

SAS Institute has a powerful commitment to connectivity. You can implement cooperative processing applications by segmenting applications any way you

NFORMATION DELIVERY

choose. Unlike other multi-platform software, the SAS System exploits the unique features of each particular environment—from native windowing to networking.

GREETS EACH USER WITH A PERSONALIZED INTERFACE.

Designed for all types of users, the SAS System provides a range of interfaces—from menu-driven, icon-based, point-and-click screens to a full applications development environment.

BACKS YOU WITH A COMMITMENT TO SERVICE AND SUPPORT AS A STRATEGIC PARTNER.

From expert training to free technical support, SAS Institute helps you maximize all the productivity of the SAS System. And we'll keep you up-to-date with new software enhancements as they become available.

▲ *From the programmer's viewpoint, there's a flexible and interactive windowing environment that displays statements and output all at once...making it altogether easier to respond to information requests.*

◀ *From the executive's viewpoint, the facts that support strategic decision making are yours in seconds. The SAS System brings you everything you'd expect in a full-function Executive Information System: up-front menus...pull-down windows...drill-down, hotspotting, traffic-lighting, and exception reporting...and graphical display of critical success factors. Plus direct access to all the power and potential of the SAS System's integrated applications.*

GAIN COMPLETE CONTROL OVER THE DATA-DRIVEN TASKS COMMON TO ALL YOUR DIVERSE APPLICATIONS NEEDS.

We've designed the SAS System around a simple, straightforward strategy for information delivery. And it all begins with data—the fundamental element in any application and the raw material of information.

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The SAS System handles such a wide range of applications needs because it also handles the four distinct data-driven tasks that make up all these applications: data access, management, analysis, and presentation.

ACCESS DATA IN ANY FILE...

With the SAS System, it's easy to reach all the remote "islands" of data throughout your organization... from data collection devices on the factory floor to your corporate database management systems. Direct and transparent interfaces link SAS applications with such popular databases as IBM Corp.'s DB2 and SQL/DS, Computer Associates' CA-DATACOM/DB®, Digital Equipment Corp.'s Rdb/VMS™, Oracle Corporation's ORACLE®, IBM's Database Manager, Ashton-Tate Corp.'s dBASE® products, and Lotus Corp.'s Lotus® 1-2-3®.

For many applications, the SAS System may be the *only* information database you'll need. Within the SAS System, you'll find efficient tools for storing and managing data...plus security features, relational operators, and SQL support.

The SAS System's flexibility extends to other kinds of files as well. In fact, the SAS System can access virtually any kind of external file regardless of format—from messy or incomplete files to the most complicated hierarchically structured files.

...MANAGE DATA IN ANY FORM...

Of course, getting data from place to place is just part of the challenge. The SAS System also makes it easy to enter new data...as well as to combine, sort, and subset data files. Analysts can even merge data from dissimilar files. And programmers can take advantage of standard SQL commands for data query.

Executive Information Systems

...ANALYZE DATA IN ANY FASHION...

Once you've got your data in shape, it's time to turn that data into information that can shape the future of your organization. And that's why the SAS System offers such a widely acclaimed and ever-expanding range of analytical tools.

Financial Applications

Data Visualization

We've brought together the most powerful data analysis methods to meet all your statistical needs: regression analysis, analysis of variance, factor and component analysis, discriminant analysis, linear programming, and more.

For decision support and forecasting, the SAS System helps bring the future into sharper view—with multi-dimensional electronic spreadsheets as well as tools for time series analysis, econometrics, and financial modeling. For even more specialized tasks, explore the SAS System's integrated tools for statistical quality improvement, experimental design, and laboratory data analysis. There's even an interactive matrix programming language for advanced mathematical, engineering, and statistical needs.

Data visualization adds still another dimension to the SAS System's analytical capabilities. Combine graphs with classical statistics to spot trends and uncover patterns reports alone just can't show.

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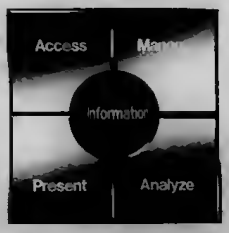
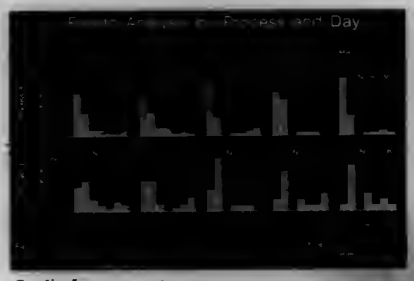


And we're setting the standard for multidimensional computer-generated graphs with the SAS System's new interactive graphics editor. Produce and modify graphics output using pre-built applications such as bar and pie charts, line graphs, scatter plots, maps, and more. And for real dazzle, there's a 3D facility for image modeling, rendering, and animation.



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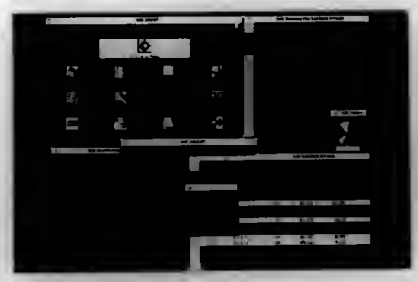

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RAID technology steps softly but may be making big strides

BY JIM NASH
CW STAFF

SAN DIEGO — Software designed to bring mainframe-like disk array technology down to desktop file servers is receiving guarded approval.

Chantal Systems Corp., based here, said last week that it is shipping Paragon RAID 5, an application that breaks up database transactions over multiple disk drives the way parallel processors divvy up calculations through multiple CPUs.

The software, written to run under Novell, Inc.'a Netware 3.11, dramatically increases database search capabilities and eliminates the need for disk duplexing and mirroring. It works with all small computer systems interface (SCSI) drives within file servers or can be attached to file servers, according to a company spokesman.

"I had this disk I/O bottleneck," said John Probst, a programmer at Lowery, Inc. in Park City, Utah. "It wasn't my fiber cabling, which was cranking, and it wasn't my workstations, which are 486s."

Yet when he tried to manipulate data on his file server, Probst said, "I could just watch my network slow down."

Lowery, a specialized accounting firm, uses a small but powerful Netware 3.11 network to access audit information.

Probst said he picked up Paragon RAID 5 three weeks ago in an effort to speed transactions without buying a minicomputer. RAID 5, which stands for redundant arrays of inexpensive disks Level 5, is a technology that splits shares of a database on several disks. Also on each disk are software rules, or parity, that help reconstruct the whole database from memory should a disk become disabled.

RAID 0 is software that only splits a database among multiple disks. Level 1 mirrors disk drives; levels 2 through 4 call for the use of a dedicated disk carrying the parity software.

A side benefit of Paragon, Probst said, was getting better fault tolerance than the disk mirroring capabilities of Netware.

Paragon supports up to four SCSI controllers and 28 SCSI disk drives. No matter how many disks are used, they all appear as one disk to a Netware server. But because they can be accessed simultaneously, the multiple disks can be accessed several times faster than single-disk systems.

Hadley Robinson, a systems integrator at a Novell reseller, Professional Computers in Santa Barbara, Calif., said his benchmarks show a fourfold increase in performance over a standard Novell duplexing system.

Robinson said he measured average cumulative data transfers of .24M byte/sec. with three drives mirrored by three other drives on a Netware server.

Continued on page 43

RAID advantages

RAID technology presents significant advantages to shops opting for small computer systems. There remains room for sober caution, however.

- Software-only RAID 5 systems are orders of magnitude cheaper than hardware/software systems for either desktop file servers or big iron.
- RAID 5 paints a stripe of information on disks, putting pieces of a database on all available disks. This is quicker to access than systems that fill each disk like a bucket of water and move onto the next empty disk.
- The technology also paints portions of the parity algorithm across all of the disks, reducing the risk that one disk failure could bring the whole system down.
- Despite all of the above, RAID 5 still lacks fault tolerance in the traditional, mainframe sense of the term. Uninterruptible power supply technology must be applied, according to some, in order to avoid data losses, or faults, on the system.

Computerworld faces trials of client/server

BY MARYFRAN JOHNSON
CW STAFF

Second in a continuing series.

As *Computerworld* completes the first phase of its own software and hardware systems migration to client/server computing, most of our staffers remain blissfully unaware of the dramatic change under way.

Not so for MIS Director Linda Nelson and Catherine Gagnon, chief copy editor.

They are already experiencing firsthand the kinds of issues that our readers deal with all the time: hardware shipping delays, bugs in the training program and frustration galore.

"We're three weeks behind schedule, but we may have been overly optimistic about what we could get done over the holidays," Nelson said.

What was accomplished, finally, was delivery of a back-ordered IBM RISC System/6000 Model 520 server, which is replacing Framingham, Mass.-based *Computerworld*'a outdated Digital Equipment Corp. PDP-11 minicomputers as its main processors. *Computerworld* is also serving as a beta-test site for Atex, Inc.'a new Unix-based Workgroup Publishing System.

As the first person to be intensively trained in the new software, Gagnon has been grappling with the tedious front-end work in a demonstration lab at Atex'a Billerica, Mass.-based headquarters. "It'a been so frustrating. I was afraid it was me, but I've been assured this is always painstaking," she said.

Sally Johnson

Nelson's eight-member *IS department will manage the new IBM RS/6000 server, which replaces an outdated DEC PDP-11*

By the time this $850,000 revamp is completed in late summer, our new architecture will include two RS/6000 Model 520s, 34 IBM Personal System/2 Model 35SX writer workstations, 14 PS/2 Model 90 page-makeup workstations and Ethernet connection to seven Apple Computer, Inc. Macintoshes that will be used for graphics.

The upside of the changes will be vastly increased desktop functions for the writers and editors, a more sophisticated look to *Computerworld*'s layout and page design, cost savings associated with the move to Unix and mirrored backup between the two RS/6000s.

The downside is trying to do it all without visible glitches in the paper's weekly publishing schedule.

"It'a a whole change of mindset for us," Gagnon said of the nine-member copy desk, which handles editing changes, proof-

Continued on page 42

Unix maker promotes X Window tools

BY JOANIE M. WEXLER
CW STAFF

SAN JOSE, Calif. — Unix system maker Altos Computer Systems has been making strides to spur X Window System technology in commercial applications.

The firm recently signed a marketing agreement with Clarity Software, Inc. to bundle Clarity's Rapport object-oriented software package into the X terminals that Altos plans to ship later this year. Rapport targets the commercial user, providing compound document, word processing, spreadsheet, presentation graphics, electronic mail, audio and fax capabilities.

Altos also recently signed an agreement with Athenix Corp. for Athenix's Multi-X cards for hosts or separate controllers to offload networking and processing loads from X terminals, according to an Altos spokeswoman. She said the Athenix technology will allow Altos X terminals to support more than 100 users cost-effectively at prices 10% to 15% higher than character-based terminals.

The X Window System — "X" — is a public-domain, high-resolution graphics-oriented protocol that is installed on computers and intelligent terminals. When a user installs X on his personal computer, workstation or X terminal, he can call up and view multiple applications that reside on different computers also running X across the network. The user can also view the various application programs in separate windows on his screen simultaneously.

Prices down

Long a mainstay in engineering and educational communities, X is seeping into the commercial sector as X terminal vendors are dropping prices and rounding out product offerings with low- to high-end products.

The Altos agreements are part of a program initiated by Altos in September 1991 to spur developers and resellers to port character-based applications to the X environment.

Robert Schuldenfrei, an independent software vendor at S.I., Inc. in Waltham, Mass., cautioned that currently, "the problem with X is that it basically takes a computer system that might support 100 terminals and lowers that support by an order of magnitude to 10." He said the culprit is not X per se, but rather the heavy processing needed for graphics networking, which is X's strength.

Banyan lowers price entry point

BY JIM NASH
CW STAFF

Months behind market leader Novell, Inc., Banyan Systems, Inc. has scrapped its monolithic pricing strategy for network operating systems.

Information systems managers said they welcomed the move, which breaks out prices for fully configured Banyan Vines 4 and 5 into five-, 10-, 20- and unlimited-user licenses. They have replaced a pricing structure that offered the unlimited license for $7,495 and Vines Team, for 10 users, for $2,495.

Novell similarly revamped its own pricing ladder last year.

Banyan's marketing vice president, Jim D'Arezzo, cited the same user demand for more affordable packages to outfit branch offices.

Outside of core offices using leased lines to form one large Vines network, the Executive Office of Environmental Affairs in Boston has approximately 20 remote locations. The branch offices use dial-up services to communicate with Boston, said Jerrold Patz, the agency's director of IS development.

Putting unlimited-licensed systems in each of the distant branches would be cost-prohibitive, he said, and Team is not up to the task. D'Arezzo acknowledged that Team "did not have all the functionality of Vines," including server-to-server communications capabilities.

Tony Carnevalle, personal computer support analyst at Sunnybrook Health Science Center in Toronto, went one step further, declaring Team "brain dead." He also pointed to enormous cost savings for individual hospital departments that have wanted to get aboard the Vines network.

Multiuser licenses are priced at $1,295 for five users, $2,495 for 10 and $3,995 for 20.

Vines 10 is shipping now. A delivery date for the other two has not been set.

CW faces client/server

CONTINUED FROM PAGE 41

reading, page design and layout in mostly manual tasks that will soon be performed on the new system. "We'll be making paper-based layout obsolete within a year and a half."

Exact measurements of pictures, graphics or charts — now done by hand — will be accomplished automatically on the editor workstation screens, with the use of a mouse-driven, windowed graphical user interface. A host of other editing functions, now typed into the command line on the terminal screen, will switch over to entirely new terminology in a what-you-see-is-what-you-get format.

So far, the most difficult job has been transferring the current template layout to a mouse-driven one, Gagnon said. Templates are the basic blueprints of each individual page.

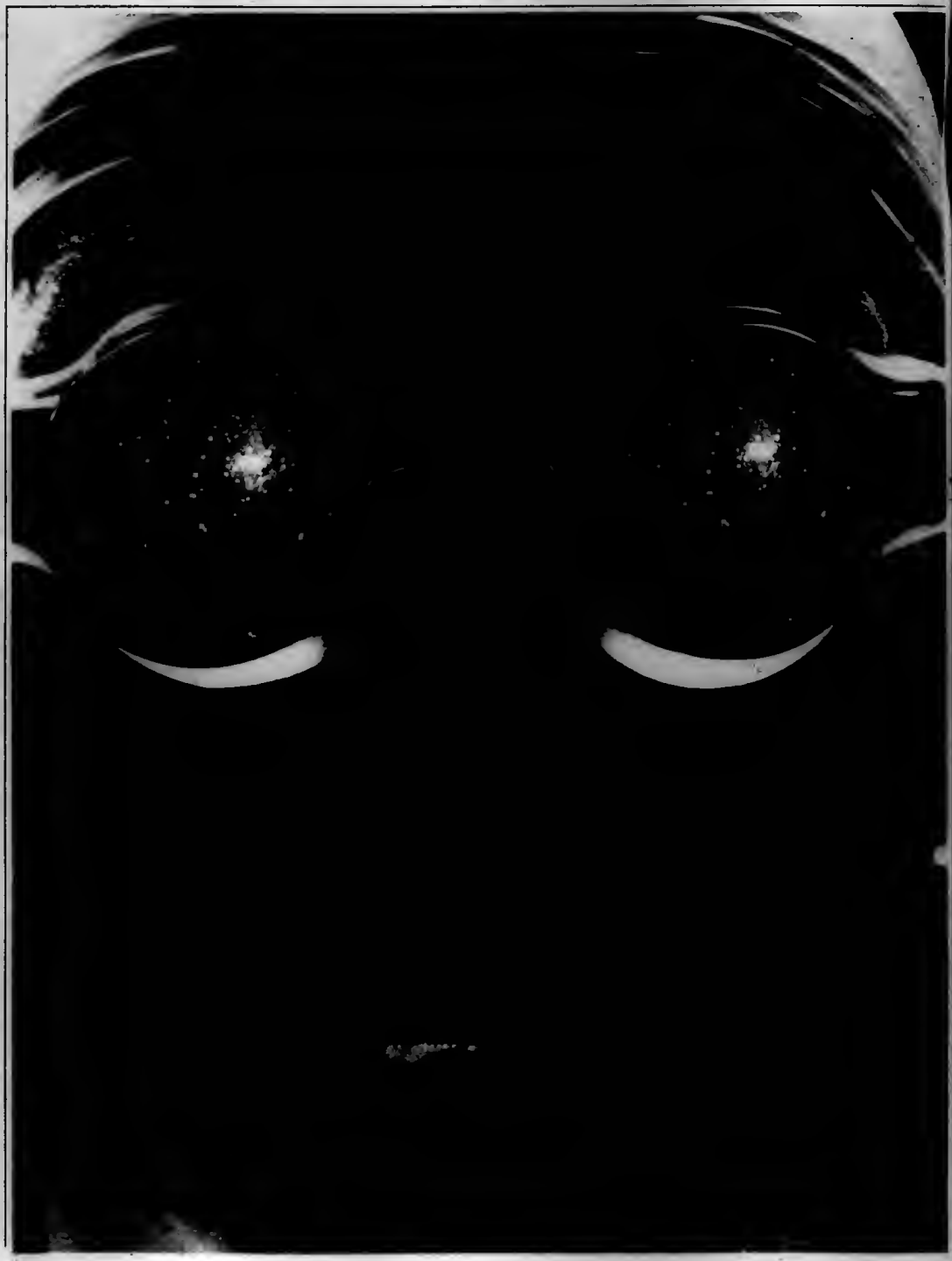
By the end of the first phase of the project, the copy desk will be producing two specialty pages — Computer Careers and Marketplace — on the new system.

During the training phase, copy editors will be working with one foot in each of two worlds — toggling back and forth between the two publishing systems.

During this month and continuing into the spring, production will ramp up from a two-page trial run into live production of 10 pages and then half the newspaper.

"This has put a lot of pressure on our IS staff," Nelson said of her eight-member department. "It takes all of us to keep the current system up and running, and we have to do this migration, too. There's a certain amount of firefighting going on."

"The scariest part is that there's no way to predict how our organizational process will change," Gagnon noted.



Sniffer monitors remote LANs

BY ELISABETH HORWITT
CW STAFF

MENLO PARK, Calif. — Users will be able to concurrently monitor and troubleshoot Novell, Inc. Netware on Ethernet and Token Ring networks using a recently enhanced version of Network General Corp.'s Distributed Sniffer System.

A central network management console can now communicate with multiple Sniffer servers on Novell local-area networks via routers running Novell's IPX protocol, according to Network General product manager Pam Larese. The servers collect traffic and error data on the LANs where they reside and pass it on to one or more user consoles at other locations.

Previously, Distributed Sniffer used Nethios to communicate with servers on Token Rings and used Transmission Control Protocol/Internet Protocol (TCP/IP) to communicate with Ethernet LAN servers. That meant "we had to shut down the distributed system" in order to switch from monitoring one type of LAN to another, said Dave Wetzel, a telecommunications engineer at Syntex Corp. The Palo Alto, Calif., company was a beta-test site for the Distributed Sniffer IPX enhancement.

Flexibility added

With the enhancement, "I can carousel between Token Ring and Ethernet via IPX, work on both types of network simultaneously — it's a lot more manageable," Wetzel said. Syntex now has about 12 servers, half on Ethernet and half on Token Ring, he added.

The new Distributed Sniffer System is also enhanced with a paging feature that can automatically notify a network manager, via a paging device, of a network problem. The pager will provide information about the problem's severity and location, Network General said.

The Distributed Sniffer with IPX communications is scheduled for release next month. Prices range from $4,995 to $10,995, depending on applications and configuration.

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RAID may take big steps

CONTINUED FROM PAGE 41

They were performing random, multirequest read/write transactions. That figure jumped to 0.98M byte/sec. using Paragon on the same server.

Probst said Paragon has already paid for its $1,495 retail price: An application that previously took six hours to run now takes about two hours and does not restrict server use.

Chantal is one of the first companies to deliver a software-only disk-array setup for low-end computers, said Bill Sines, an analyst at International Data Corp. in Framingham, Mass.

Hardware/software combinations do exist, but they cost as much as $30,000, Probst said. However, Sines noted that information systems managers who are used to working with disk arrays on high-end computers may not consider Paragon's effort to be truly fault tolerant.

Until battery backup is integrated with a personal computer-based system — or better yet, until the disk array and battery backup are separated from the server — data may be lost if the power fails, Sines said.

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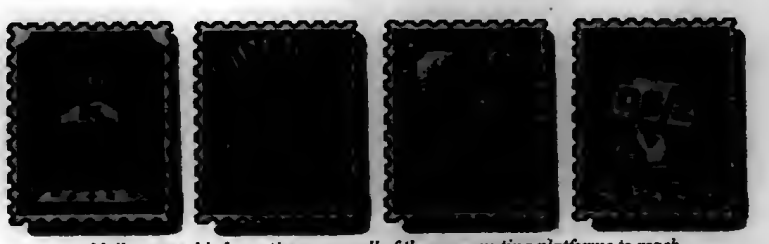

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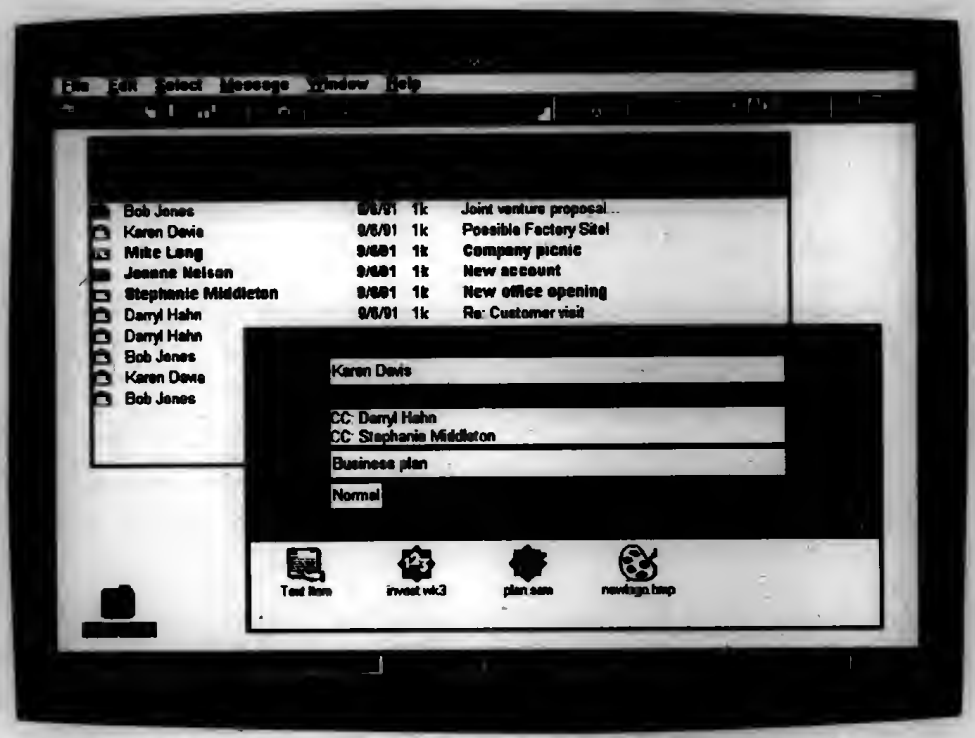

Over a million satisfied customers have already given cc:Mail a first-class rating. For example, Windows users love its easy-to-use interface, SmartIcons™ and application integration. And PC World *says "Sending a cc:Mail message is easier than addressing an envelope and licking a stamp."* 9/91*

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LAN TIMES

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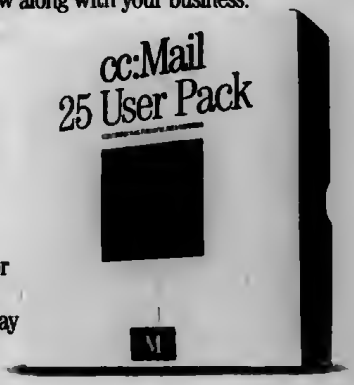

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NEW PRODUCTS

Electronic mail

Interactive, Inc. has announced M-Mail Systems, a set of software and hardware packages that integrate sound with electronic mail.

The Systems packages include the company's Interactive M-Mail E-mail software, a sound adapter board and sound I/O devices. Users can send voice messages attached to text and graphics E-mail messages.

Pricing ranges from $295 for System I, including a headset for voice communications, to $395 for System III, which provides a microphone and speaker.

Interactive
204 N. Main St.
Humboldt, S.D. 57035
(605) 363-5117

Development tools

Twin Sun, Inc. has announced Coex, a tool kit for creating client/server group collaboration applications for Transmission Control Protocol/Internet Protocol networks.

Coex applications allow multiple users to view and edit a single data file concurrently. Coex includes a server library that prevents data collisions and manages notification.

The product is available on most major Unix systems. Pricing is between $5,000 and $10,000, depending on the platform.

Twin Sun
Suite 2055
360 N. Sepulveda
El Segundo, Calif. 90245
(310) 524-1800

Local-area networking software

Tallgrass Technologies Corp. has started shipping an enhanced version of Netsecure, its server-based network backup utility.

Netsecure integrates with the Novell, Inc. Netware operating system to provide centralized backup control. Version 4.0 incorporates directory mirroring, a tape usage database and an Auto Pilot feature with tape rotation and quick restore capabilities. It also allows backup storage to cascade across multiple drives.

Pricing starts at $1,895 for five users.

Tallgrass Technologies
11100 W. 82nd St.
Lenexa, Kan. 66124
(913) 492-6002

Online Computer Systems, Inc. has enhanced its Opti-Net compact disc/read-only memory (CD-ROM) networking software.

Opti-Net 2.0 for DOS includes removable Opti-Net device drivers and terminate and stay resident programs. This allows users to remove the drivers from their personal computers without rebooting once they are finished using a CD-ROM application. Version 2.0 also offers a remote network management utility for monitoring optical servers as well as other enhancements.

Pricing ranges from $795 for an eight-user configuration to $1,495 for 100 users.

Online Computer Systems
20251 Century Blvd.
Germantown, Md. 20874
(301) 428-3700

Data storage

Storage Dimensions, a subsidiary of Maxtor Corp., has announced a line of fast small computer systems interface (SCSI) hard disk drives with support for Novell, Inc. Netware and OS/2.

The Lanstor 2Fast and Speedstor/2Fast products include a fast SCSI drive and a bus master host adapter for a Micro Channel Architecture, AT/XT or Extended Industry Standard Architecture (EISA) server. The products feature formatted capacities from 525M to 2,100M bytes and burst transfer rates of up to 10M byte/sec. External configurations of up to four drives are offered.

Pricing ranges from $3,945 for a 525M-byte AT/XT model to $37,950 for an external EISA subsystem with 8.4G-byte total capacity.

Storage Dimensions
1656 McCarthy Blvd.
Milpitas, Calif. 95035
(408) 954-0710

Database management systems

IMRS, Inc. has released Hyperion, a client/server business information database and reporting system that runs under Microsoft Corp.'a Windows.

Hyperion provides a Windows front end, including dynamic links to Microsoft's Excel spreadsheet for data analysis. The database is structured to facilitate quick application development and implementation, the company said.

A site license costs $125,000 with additional charges for remote sites.

The company also announced version 2.0 of IMRS Ontrack, its Windows-based executive information system for local-area networks. The new version provides live access to the IMRS Micro Control time series database.

Pricing for a site license starts at $35,000.

IMRS
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FCC mulls new tariff rules

ANALYSIS

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Recent watchers of President Bush's lips may have read pledges for a downsized federal regulatory agenda, but meanwhile, the Federal Communications Commission has embarked on an inquiry that could lead to more red tape for buyers of custom network services.

The FCC is taking a new look at its long-standing policy of not requiring long-distance carriers other than AT&T to file tariffs, public schedules of rates, terms and conditions. If MCI Communications Corp., U.S. Sprint Communications Co. and others are made to file tariffs, users could gain useful information for striking deals but would pay for that information through higher prices, loss of confidentiality and regulatory delays.

The FCC recently dismissed a complaint from AT&T that alleged that MCI was illegally offering services without having filed the required tariffs. The FCC cited its long-standing rule exempting "nondominant" carriers — those without the power to control markets — from the filing requirement (see story at right).

However, the commission handed AT&T a partial victory by promising to re-examine the legality of the rule, opening up the possibility of imposing on the smaller carriers at least some of the public disclosure requirements under which AT&T continues to operate.

"For my clients, there are positives and negatives to this. We don't have a bottom line," said Hank Levine, a Washington, D.C., attorney who represents telecommunications users at large financial institutions. "But on balance, users would probably prefer not to file."

According to Levine and others, users — especially those looking for complex network services such as large, custom data networks — would benefit from the additional information available from public filings. They also said tariffs would aid comparison shopping and help the unwary or unsophisticated avoid paying more than the going rate.

On the other hand, critics of the idea said it could turn the top three players — AT&T, MCI and Sprint — into an oligopoly, a situation in which a few strong companies control a market. Those critics said MCI and Sprint already move prices up and down under an AT&T price umbrella. Public tariffs would only make it easier for the three to move in lock-step and not always in a direction beneficial to customers, they added.

AT&T has about 63% of the $55 billion long-distance market, a share that has fallen steadily for years. No. 2 carrier MCI has 16% of the market and third-ranked Sprint has slightly less than 10%.

Said Levine, "The best of all possible worlds for users is to

Continued on page 50

Regulatory history in review

A brief history of long-distance regulation:

1934 — Congress passes Communications Act, establishing FCC to regulate interstate communications. Act says carriers may not unjustly discriminate on the basis of price and must make price schedules public. Ensures an AT&T monopoly in long-distance services.

1970s — Microwave and satellite technology spawn competition for AT&T.

1980 — FCC defines "dominant" and "nondominant" carriers; retains traditional regulation for former, "streamlined" regulation for latter.

1989 — AT&T claims that MCI violates law by offering "off-tariff" services.

1990 — FCC states that business market for long-distance services is "vigorously competitive," suggests regulations for AT&T business services may be harming consumers and proposes steps toward deregulation.

1992 — FCC begins inquiry on possible reregulation of nondominant carriers.

GARY H. ANTHES

AT&T updates PBX, hikes prices by 8%

BY JOANIE M. WEXLER
CW STAFF

In an economy that has companies stretching equipment depreciation cycles, AT&T Business Communications Systems has signed up customers for new versions of its digital Definity private branch exchange (PBX) and boldly announced 8% price hikes for PBX systems.

The price increases, effective April 6, are meant to counteract the commodity-level PBX pricing that has flattened the market in the last few years, according to AT&T.

Users who have hopped on the Definity Generic 3 bandwagon cited as their reasons compatibility with national ISDN-1 protocols and computer-aided telephony technology, a migration path from their older AT&T PBXs and elastic support of 40 to 10,000 stations.

The Definity G3R and G3I, based on reduced instruction set computing and Intel Corp. chip technology, respectively, blend characteristics of their G1 and G2 predecessors.

G1 limited D channels

One Integrated Services Digital Network (ISDN) user who preinstalled the G3R in December explained that "there is a limit to the number of primary-rate 'D' channels you could use on the G1 product" that he was using.

Carl Weston, director of telecommunications for the state of Maine, installed the new switch because "we can get hundreds of D channels on this PBX." The D channel in a primary-rate (1.5M bit/sec.) ISDN network, which the state uses, is a 64K bit/sec. circuit that allows out-of-band signaling for reallocating multiple data/voice channels on the fly or data packet switching.

The Definity G3R is said to increase call processing capability by more than 50% in voice processing and 400% in PBX-to-host links. It also reportedly offers security features to guard against toll fraud.

John Clark, manager of workstation services at National Life Insurance Co. in Montpelier, Vt., said his initial problem was coordinating between his voice messaging system and PBX.

Clark added that compliance with computer-aided telephony technologies, such as IBM's Callpath for linking PBXs to hosts for database-oriented applications, was important because he will look into those applications in about a year. In addition, "We were looking for a PBX we could upgrade to 2,000 stations without a switch change. We now have 1,400 active stations; a G1 only goes to 1,600," he said.

Anne Donusz, a market analyst at Eastern Management Group, a consultancy in Parsippany, N.J., said the economy has increased the average PBX age from seven to eight years, and "people will be putting off PBX purchases until about 1993."

She said it will be the software applications, such as call management and sophisticated voice management, that determine what system companies buy.

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J.P. Morgan on outsource bandwagon

Financial services firm's $20M deal for overseas services is one of two BT North America scores

BY ELISABETH HORWITT
CW STAFF

NEW YORK — The global networking outsourcing movement gained another convert last month, when J.P. Morgan & Co. signed s $20 million, five-year contract to outsource its overseas terminal-to-host network to BT North America, Inc.

J.P. Morgan expects to realize savings of $12.5 million by moving to BT's Global Network Services from a private network of BT packet switches, according to Tom Hynd, s vice president at the financial services firm. That savings will come primarily from J.P. Morgan's paying for site-to-site packet-switched connections on a per-use basis, he added. The firm's current network runs on dedicated lines that cost the same per month no matter how much they are used.

The network outsourcing agreement has resulted in "insignificant staff reductions" through attrition, but no layoffs, Hynd said. However, outsourcing the network will help J.P. Morgan with its overall restructuring, which was implemented in February 1991 "to reallocate our staff and dollars, to invest in new business opportunities, to free staff up to directly support business units as they work on and develop new products and offerings globally," Hynd said.

Several outsource deals

The outsourcing deal is just one of several that J.P. Morgan is planning, and it came about just before The Gillette Co. also signed with BT (story below). J.P. Morgan recently chose an outsourcing vendor for its overseas local-area network interconnections, which it will announce in s few weeks, according to Peter Miller, s managing director at the firm. The company is also looking at outsourcing an overseas private network that carries voice and its domestic LAN-to-LAN backbone, Miller said.

J.P. Morgan began looking st global network outsourcing about a year ago, Hynd said. The time seemed right because the firm was in the process of reorganizing its telecommunications department, reassigning people to work more closely with business users on applications they needed, he added. The company had also concluded that global networking services such as BT's had reached an adequate level of reliability.

"What really sealed the decision in our minds was the willingness of BT to step up and contract with us for performance guarantees on the network as well as to make modifications to their public service offering to meet our management, security and reporting needs to ensure that our use of that was secure and monitorable," Hynd said.

Guarantees cover overall network availability, local connection availability, end-to-end delay, mean time to repair and other factors, Hynd said. The contract invokes dollar penalties if the guarantees are not met, he added. The penalties are significant, he said, refusing to give specific amounts.

J.P. Morgan's Hynd: *Outsourcing will help with overall restructuring*

BT will also provide customized reporting of network traffic, error levels, performance and unauthorized access sttempts, s BT spokesman said.

BT's network will allow terminal and personal computer users at various overseas sites to exchange electronic mail, send in financial reports and access credit exposure information and various analytic resources at the firm's computer facilities in Delaware and New York, Hynd said. Computers in Europe also use the network to communicate with one another.

Not the GE model

J.P. Morgan dismissed the idea of outsourcing in the same manner as General Electric Co., which involves turning over the running of an existing private network to global carriers [CW, Jan. 13].

"It didn't meet our needs in terms of potential dollar savings," Hynd said. "We have a relatively efficient network in terms of line costs, with much of the equipment already depreciated."

The network is in its early implementation phase, with at least five modes now up and running on BT's service. The network will eventually support 26 J.P. Morgan sites in 14 countries.

Gillette signs up BT as backbone manager

BY ELISABETH HORWITT
CW STAFF

BOSTON — The Gillette Co. last week officially became the latest U.S. corporation to offload the management of its overseas network.

The $4.34 billion razor and toiletries manufacturer has signed a three-year contract under which its operations in 180 countries will he linked over an unspecified time via BT North America, Inc.'s Global Network Services. The contract announcement follows closely on s similar announcement made by BT and J.P. Morgan & Co. [CW, Feb. 3].

"We did not want to he in the business of having to manage individual leased lines in country-to-country [connections], dealing with the various PTTs directly," said Dick Crane, Gillette's director of systems operations and telecommunications.

Further, the company's current network is suffering from degradation problems on its cross-border data links. The network consists of s patchwork of various Postal Telephone and Telegraph authorities' (PTT) X.25 networks, connected between countries via X.75 gateways. Some of those gateways "were being throttled down to a 25% throughput," or approximately 2K bit/sec., Crane said. "I don't know why, but it's likely that they are oversubscribed."

The Gillette Company

Another key component of the BT/Gillette contract, Crane said, is that Gillette maintains control of the network's direction. "BT North America will manage the network backbone, but we will manage BT — we do all the planning, scheduling and coordination as far as [network] activities that each Gillette site is up to."

In addition, BT will report network alerts and traffic statistics to Gillette's trouble reporting system, he added.

This cautious attitude has been typical for corporations that are new to entrusting their global networks to a carrier, said Roberta Wiggins, s senior analyst at The Yankee Group. "They see the cost advantages of the move, but for their own peace of mind they want to keep close involvement with the network."

Links to anything

With overseas installations in some 180 countries, Gillette undertook s search for an international value-added network (VAN) provider that could "link anything to anything, anywhere," Crane said. Other VANs considered included GE Information Services, IBM's Information Network and Infonet, according to one industry source.

Top criteria for the search included reliability and a global presence that corresponded to the location of Gillette's international sites, Crane said. "We are an expanding business, and we need a network that gives management the flexibility to align their organizations any way they wish — to centralize, decentralize or continue as is."

In addition to linking Gillette's overseas sites on its X.25 network, BT will provide support of customer premises equipment and local user support. Under a recently completed, six-month pilot program, 10 Gillette sites were interconnected over BT's network, at significant savings, Gillette said. The BT network will support 9.6K bit/sec. average response time, with the option of boosting speeds to 1M bit/sec. if necessary, Crane said.

The Gillette contract resembles BT's contract with J.P. Morgan in that both customers demanded assurances that the carrier meet certain response time and reliability levels consistently — or suffer financial penalties, Crane said. Penalty amounts were not disclosed.

Gillette expects to have two major business units, comprising almost 35 sites, almost 100% cut over to the BT network by the third quarter, Crane said.

Gillette and J.P. Morgan are both part of international corporations' movement toward global network outsourcing that should crest in the next year or two, according to Len Elfenbein, president of Lynx Technologies, Inc., s Little Falls, N.J., consulting firm.

However, that wave will he followed by a reaction, with some companies going back to private networking as their contracts expire, Elfenbein said.

FCC mulls over new tariff rules

CONTINUED FROM PAGE 47

have the benchmarks AT&T files, and then to have the little guys come in and say, 'Psssst, I'll charge you 5% less.' If MCI and Sprint have to file, we would lose some negotiating opportunities."

"There's no reason [for MCI and Sprint] to file tariffs," said James S. Blaszak, counsel for the Ad Hoc Telecommunications Users Committee, a group of 20 Fortune 100 companies. "The market is operating. Regulatory interference in markets that are effectively competitive is inefficient and nonproductive."

Users said they worry that filing descriptions of custom networks may divulge confidential information about their businesses.

Another veteran FCC watcher, who asked not to he named, predicted the FCC will sidestep the issue by moving as slowly as it can while accelerating the pace of deregulating AT&T, hoping that AT&T will withdraw its complaint as a result.

> USERS WORRY THAT filing descriptions of custom networks may divulge confidential information about their businesses.

Although the regulatory climate discourages new government rules on industry, AT&T has some potent legal arguments on its side, including the Communications Act of 1934, which calls for "every common carrier" to make its rates public.

The more important question may not he whether the FCC bows to the force of AT&T's legal arguments, but how it structures any new tariff requirements. It could impose the same extensive reporting rules that bind AT&T, or it could impose abbreviated requirements.

Nightmare Scenario #2

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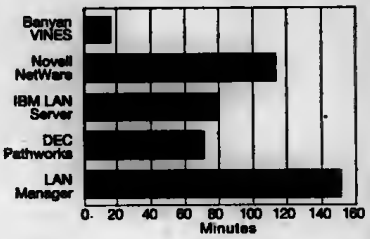

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Network management

Netlabs, Inc. has released Discovery 2.0, a device location utility for networks.

Discovery 2.0 performs network device discovery searches based on either of two methods: a fast search based on Simple Network Management Protocol technology that discovers only active Internet Protocol (IP)-addressable devices, and a complete search that discovers all devices with IP addresses on the network.

According to the company, the network manager can create a limited amount of network traffic by searching specified subnets in an enterprise network.

Discovery 2.0 runs on Unix workstations and is priced at $3,000.

Netlabs
4920 El Camino Real
Los Altos, Calif. 94022
(415) 961-9500

Front ends, multiplexers

Fibronics International, Inc. has introduced a fiber-optic, multiplexed hub that supports multiple local-area network protocols and real-time protocols.

The Unimux V 892 features Simple Network Management Protocol support with port-level control. It supports Ethernet, Token Ring and voice platforms and point-to-point protocols including IBM 3270, RS-232 and V.35.

Pricing for the hub starts at $5,100. A field-upgradable path for users of the company's FM832 and FM892 multiplexers is also available.

Fibronics International
1 Lowell Research Center
847 Rogers St.
Lowell, Mass. 01852
(508) 937-1600

Gateways, bridges, routers

Gandalf Technologies, Inc. has introduced the Gandalf Premier Lanline 5500, a remote local-area network access system.

The product gives remote workstation users transparent, protocol-independent LAN access via Integrated Services Digital Network facilities. It offers 56K- or 64K bit/sec. communication with simultaneous analog voice service.

The Gandalf Premier Lanline 5500 costs $1,995.

Gandalf Technologies
130 Colonnade Road S.
Nepean, Ontario K2E 7M4
(708) 541-6960

Raycom Systems, Inc. has announced a local bridge for connecting Token Ring local-area networks that use IBM's Source Routing protocol.

The Model 3440 bridge interconnects 4M and 16M bit/sec. LANs, with a buffering and forwarding scheme for optimal communication from a 16M- to a 4M bit/sec. LAN. Both shielded and unshielded twisted-pair wiring are supported.

The Model 3440 costs $3,995. A version with a built-in fiber-optic extender is priced at $4,595.

Raycom Systems
Building C-8
16525 Sherman Way
Van Nuys, Calif. 91402
(818) 909-4186

Micro-Integration Corp. has created a twin-axial 5250 gateway with a configurable network interface.

The MI 5250 Local Gateway 4.0 supports Novell, Inc.'s IPX/SPX protocol and IBM's Netbios interface and can be configured at runtime. Support for Banyan Systems, Inc.'s Vines and asynchronous dial-up networks is also planned.

The gateway ($1,995) works with IBM Application System/400 and System/36 host systems.

Micro-Integration
215 Paca St.
Cumberland, Md. 21502
(301) 777-3307

Electronic mail

Da Vinci Systems Corp. has announced an electronic-mail package with native Novell, Inc. Message Handling System (MHS) support for Apple Computer, Inc. Macintosh users.

Da Vinci MacAccess E-mail features file enclosures, conversation threading, message sorting and mail delivery grades. MHS support allows users to exchange mail with personal computer users and access MHS gateways to other mail services. A five-user license costs $395.

Da Vinci Systems
Suite 200
4200 Six Forks Road
Raleigh, N.C. 27609
(919) 881-4320

Infinite Technologies has introduced MHS Librarian, a software product that automatically handles electronic-mail requests for files.

The product runs on network hubs. It reads key words in an incoming message's Subject line and attaches the appropriate file or file-selection information to a return message. It can also respond by sending files to a third party. Password security options are included, and the MHS hub administrator is automatically notified of invalid keyword requests and other errors. It costs $199 per hub.

Infinite Technologies
Suite D
11403 Cronhill Drive
Owings Mills, Md. 21117
(410) 363-1097

Ameritech leads Bells with revamped fax service

BY ELLIS BOOKER
CW STAFF

CHICAGO — Ameritech Corp. late last month moved out in front of the other six regional Bell holding companies with a store-and-forward fax service designed to complement stand-alone fax machines.

Ameritech Faxtra, which is available only in metropolitan Chicago, offers users four options: a fax "mailbox" into which messages can be sent and downloaded; a "no busy" feature that automatically retransmits faxes to busy fax numbers; a "broadcast" option that sends one document to multiple fax numbers; and a "management report" that provides a detailed analysis of fax activity over a given time period.

"We're ahead of the other regionals but just barely," an Ameritech spokesman said. The service jibed nicely with the Chicago-based company's dual strategy of providing enhanced services and increasing the use of the public network, he explained.

Faxtra's fax mailbox includes a voice-response system that lets users dial in from a Touch-Tone telephone and learn how many messages they have as well as their origin.

Users can also direct their mailboxes to send the stored documents to another number. Customers who want to be informed a fax is waiting can set up the system to notify them via fax, phone call or pager.

Faxtra's features cost $9.95 to $15.95 per month, plus a monthly usage fee. Customers also pay a onetime $15 activation fee.

The application runs on a Sequent Computer Systems, Inc. server, and it uses a hardware and software platform from Atlas Telecom based in Portland, Ore.

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MONTGOMERY SECURITIES

CA Unix tool enters beta sites

BY MARYFRAN JOHNSON
CW STAFF

ISLANDIA, N.Y. — One year after unveiling a major Unix software initiative for data center management, Computer Associates International, Inc. is moving into the beta-test stage with s handful of commercial sites in Europe, Canada and the U.S.

Those sites will be conducting trial runs of CA-Unicenter, an integrated system for data center management that claims to deliver to the Unix world the kind of capabilities long taken for granted in IBM mainframe shops: production control, security, storage management, resource accounting and problem-tracking. The product is due for general delivery in the third quarter.

"Unicenter addresses what is really the life's blood of an organization: data integrity, security, backup and archiving," said Gary Donnelly, president of Donnelly and Associates, Inc., an open systems consulting firm in Reston, Va.

"We're starting to see Unix move into classic environments, where the administrator is not a Unix techie but an operator whose job performance depends on efficient management of that center," Donnelly added.

Unicenter, which is priced from $3,000 to $45,000, is s crucial piece of CA's game plan to give Unix the robustness required for commercial processing. The system software is initially slated to run under Hewlett-Packard Co.'s HP/UX Unix variant. Other Unix versions will follow, CA officials said.

CA and HP joined forces last year to develop products for the HP 9000 Series 800 midrange Unix machines in systems management, information management and business applications such as payroll, personnel and human resources packages. A dozen products were introduced in October 1991, including the CA-DB for Unix relational database management system.

CA's nascent presence in the Unix software market is significant almost by virtue of its being there at all, analysts said.

"Here is a major player committing dollars in s very serious effort to bring mainframe-type software into the Unix environment," Donnelly noted. "The Unix market is now mature

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Trend

CA's Unix initiative aims products at three areas:

- **Information management software:**
  - Database management: CA-DB for Unix and CA-Datacom/Unix.
  - PC query tools: CA-QbyX.
  - Application development: CA-DB Generator.
- **Business applications software:**
  - Human resources: CA-Classic/Open.
  - Financial data: Masterpiece or 20/20.
  - Graphics data: CA-Disaplo.
- **Systems management software:**
  - Backup, archive, security, problem control and scheduling: CA-Unicenter.

Source: Computer Associates

New, tougher Garfield emerges

BY JEAN S. BOZMAN
CW STAFF

BRISBANE, Calif. — There is no warm fuzzy feeling for old-line MIS — with its large staff and reliance on batch processing — at Dakin, Inc., which makes the plush Garfield dolls sold at airports and gift shops.

Since 1990, when the firm's sales fell from $200 million to $75 million, Dakin has shed half of its 500-person work force and nearly all of its information systems programmers. Last year, Dakin installed an IBM Application System/400 Model D computer and off-the-shelf financial software. After a test-run period last fall, Dakin pulled the plug on three Unisys Corp. V series mainframes last month and went into production on the AS/400. That ended a period of 15 years in which Dakin had used computers and custom software programs based on systems from Unisys and its predecessor, Burroughs Corp.

"They just took up space and slowed us down," said Marshall Calkins, director of credit and customer services, referring to the old computers. "The problem with the Burroughs system is it forced us to be a reactive company, and this new system allows us to be a proactive company." Dakin sold the aging systems, along with dozens of terminals, at s considerable loss.

Dakin accepted that loss as part of the price for a turnaround being lead by s management team hired in 1990. The repositioned toy company, its worldwide sales now edging back toward $100 million, expects its 125 U.S. employees to do more of the work of gathering data from the central computer database and its IS staff to keep the central CPUs humming. There used to be 32 IS staffers; now, there are just 12.

The downsized firm also expects s hard fight to regain s No. 1 position against stuffed-toy competitors Applause, Inc. in Los Angeles, Russ & Berrie Co. in Oakland, N.J., and Gund, Inc. in Edison, N.J.

"I'm not trying to build an ivory tower here," explains Raymond Kivley, Dakin's director of

Continued on page 58

ON SITE

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APPLICATION DEVELOPMENT

IN BRIEF

Autoplan announced

■ **Digital Tools, Inc.** announced project management software for users of Opencase/Toolbus, an application development environment from **Informix Software, Inc.** Autoplan, which is scheduled to ship in the second quarter, is part of Informix's Opencase Partners Program for promoting interoperability between software development tools based on **Hewlett-Packard Co.'s** Softbench technology.

■ **Interactive Development Environment, Inc.** has agreed to port Software through Pictures to **Motorola, Inc.'s** Multipersonal Series 8000 Unix workstations and servers. Software through Pictures is an integrated computer-aided software engineering (CASE) suite. The deal is expected to bring in $3 million for Interactive Development during the next three years.

■ **Chicago-based Andersen Consulting** recently rolled out **Microsoft Corp.'s** Windows versions of two front-end components of Foundation, Andersen's CASE workbench. Design/1 and Plan/1 for Windows are each priced at $7,000 for a single copy. Users of the DOS versions of the two modules can trade them in for a Windows edition free of charge. When the IBM OS/2 version hits the streets, users will be able to swap Windows products for the OS/2 version.

■ **Oracle Corp.** and **The Boeing Co.** joined the **Object Management Group (OMG)** recently, bringing total membership to 200. The OMG is pushing to add more end users to its ranks, including vendors and universities. About 40 new organizations have joined Framingham, Mass.-based OMG since the group announced the Object Request Broker standard in October 1991.

Bug-free code: The competitive edge

Automated software testing equipment uses advanced tools and technology to eliminate code error

BY JAMES DALY
CW STAFF

Information systems managers known to crack the whip with their programmers are familiar with the typical response: You want it quick, or you want it good? These days, it had better be both — and bug-free.

The advent of shrinking development time — object-oriented application builders churning out reusable code allowing mission-critical programs to be written in days — has created a fertile new breeding ground for software bugs.

But whether you are an individual programmer or a member of a large corporate IS department, you will need to produce bug-free codes quickly and efficiently to maintain a competitive edge.

Deadly bugs

At worst, bugs can kill you: Three people were permanently injured and another one died from overexposure to X-rays because of a software bug in a diagnostic medical device several years ago. On the vendor side, bugs have been known to cripple even well-established firms. Onetime database powerhouse Ashton-Tate Corp. never fully recovered from releasing a disastrously buggy version of its Dbase IV flagship product several years ago.

Shortened delivery schedules and tighter budgets have heightened the need to squash bugs encountered during the application development phase. But what can be done short of the traditional and costly process of extending the testing phase? Plenty, users and analysts said.

Recently, Mercury Interactive Corp. in Santa Clara, Calif., and San Jose, Calif.-based Tiburon Systems, Inc. released automated software testing equipment that uses advanced tools and technologies to eliminate code errors.

Source: Tiburon Systems, Inc.

Mercury's Testrunner, for example, simulates an operator by entering scripts of keyboard and mouse commands while a program is running. It then compares the program's responses with expected results and flags discrepancies. Similarly, Tiburon's Ferret helps programmers design powerful test suites.

These products may be arriving none too soon. Researchers at Tiburon, which also serves as an independent software tester for companies such as Borland International, Inc., said code defects are showing up with greater regularity in critical applications. About 15 billion lines of code were written in 1990, and by a conservative estimate of 10 bugs per 1,000 lines of code, 150 million bugs were produced that year, according to Gregory Pope, director of validation technology at Tiburon.

If bugs go undetected during the design phase, they become more expensive and time-consuming to correct. "A bug that may take a half-day to fix in the creation process may take a week or more once all the applications are out in the field," said Clem Hergenhan, president of CSF Corp., a telecommunications consulting firm in Somerset, N.J.

Computer-aided software testing methods also address the dodgy issue of testing the graphical applications. "To complicate matters, windowing software has [rendered] obsolete many traditional software testing tools," said Boris Beizer, a Huntingdon Valley, Pa.-based author of several books on software testing.

Share applications

Another tip for bug-free software is this: Share your applications with as many departments as possible.

"The best bug detector we've ever found is lots of hands-on end users," said Frederick Gault, vice president at The San Francisco Canyon Co., a software development house. "And that doesn't only mean programmers, who are often so ingrained with preconceived notions of what the program can do that they overlook the obvious. Instead, get people who are unfamiliar with the program to put it through the paces."

While some commercial companies use an alpha and beta test to find bugs in products, this luxury cannot always be extended to an in-house development project. But users said no expense should be spared in weeding out the bugs in software. Hergenhan added: "If you put a buggy piece of code out in the field, there's a good chance it's going to blow up in your face."

Hyperdesk releases Object tool

WESTBORO, Mass. — Hyperdesk Corp. introduced a tool kit that allows developers to write object-based applications for client/server environments.

Fulfilling a promise made in October, Hyperdesk said the tool kit will be available later this month. Called the Distributed Object Management System (DOMS), the development software includes the following:

- An interactive development and testing tool.
- A standard interface developed by the Object Management Group for invoking objects.
- A language to define types and operations of objects.
- An object database.
- An object repository to store interface and type definitions.
- Class libraries.

DOMS will run on different versions of Unix as well as under MS-DOS.

The development tool kit is priced at $1,995 per user. A runtime version priced at $495 per user will be ready around June, the company said.

In addition, three other vendors announced they will build applications based on DOMS. IXI Ltd. in Cambridge, England, said it will incorporate DOMS into X.desktop, its desktop manager for Unix.

Constellation Software, Inc. in Framingham, Mass., will use DOMS in its Hyperstar client/server database. Finally, Uniplex Integration Systems, Inc. in Irving, Texas, said it is building office-automation tools around DOMS.

DEC's InstantSQL tool eliminates hand coding

BY SALLY CUSACK
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. has announced an application development tool for RDB/VMS, the vendor's relational database software for production system applications.

Designed specifically for RDB/VMS programmers and administrators, InstantSQL Version 1.0 presents a pictorial view of an RDB database that will enable users to compose and test database queries.

No hand-coding

This eliminates the need for hand-coding complex SQL statements, the vendor said, adding that this allows users to graphically create queries, develop prototypes and manipulate data in RDB without knowing the syntax or memorizing the commands.

Instant SQL incorporates VMS Decwindows Motif for the graphical user interface and offers pull-down menus as well as point-and-click mouse controls. Query results can be viewed in a spreadsheet-style window that supports both horizontal and vertical scrolling, or results may be saved in a text file.

In addition, full on-line, context-sensitive help is available through the menus.

The product is available now in three different license pricing options: personal, concurrent and unlimited system use. Pricing for the personal use software license begins at $827.

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DEC firms strategy for RAID storage

BY SALLY CUSACK
CW STAFF

SHREWSBURY, Mass. — Digital Equipment Corp. is hoping to take the storage marketplace by "Storme" over the next several years with what it predicts will be a volatile mixture of open-systems-architected, leading-edge technology systems and competitive pricing through both direct and OEM sales.

The strategy — Storage Modular Enclosures (Storme) — is intended to offer customers continued investment protection and product flexibility with a modular, building-block approach to storage within a single shelf, said Charles Christ, DEC's vice president of mass storage subsystems.

Within a selected shelf configuration, customers will be able to mix and match storage devices by type and size. The shelves will range in size and will also include drives, controllers and power units. All Storme products will be based on Small Computer Systems Interface-2 (SCSI-2) standards and will be available through both direct sales and OEM channels.

The products will have a linear scalability similar to DEC's Digital Storage Systems Interconnect (DSSI) and will span a range from the desktop to the mainframe, Christ said. DEC plans to open its DSSI technology by working with other vendors to merge the DSSI and SCSI-2 standards. The first products are due out this year.

"The whole thing reads, very simply, more price-competitive hardware," said Kenneth Krallman, MIS manager at Carleton Technologies, Inc., an aerospace defense contractor in Orchard Park, N.Y.

"If DEC can sell in the OEM market, that means they have made the manufacturing adjustments and can compete pricewise," Krallman said.

Carleton Technologies currently uses DEC's RZ, RA and RF series disk drives across a variety of VAX platforms. DEC traditionally has offered slightly slower disks at slightly higher prices than third-party vendors, Krallman said, noting that prices of DEC drives seem to have dropped dramatically over the past two years to fall into line with the competition.

DEC, which relies on its storage products for between 25% and 30% of its revenue, has taken steps to make its manufacturing business more efficient. Over the last six financial quarters, the company has reduced manpower in the storage area by 40% and has closed several plants.

Changes necessary

All these changes were necessary to make DEC's cost structure viable in the OEM market, Christ said, adding that the vendor announced its intention of going into OEM last year, and that DEC is "very close" to formalizing a $50 million to $100 million OEM contract in the 2G-byte, 5¼-in. disk drive technology arena.

Storme's success is believed to be vital for DEC to prove that it is a serious contender in today's storage market.

Noting that the vendor's disk and tape reliability has always been competitive in its traditional area of 9-in. technology, Kevin Beam, a market analyst at Reliability Ratings in Needham, Mass., said DEC has been edged out over the past several years by third-party players offering 5.¼-in. storage solutions.

Michael Casey, director of storage industry research at Computer Intelligence/Infocorp in La Jolla, Calif., said Storme will allow DEC to open up its architecture to third parties while simultaneously bringing its own products to market faster.

"What is really surprising is that this is coming from a company who has had success with a large group of users locked into a proprietary market," Casey said. "DEC has recognized that customers are going to be demanding actual open systems, not only in networking, but across all platforms."

Minicomputers aid China's health care

BY KIM S. NASH
CW STAFF

When David Fang and Dick Montgomery hook the last terminal to the two minicomputers four months from now, the Sir Run Run Shaw Hospital should be one of the most computerized organizations in the People's Republic of China.

Fang, who is a surgeon at Loma Linda University Medical Center in Loma Linda, Calif., said he plans to take over as president of the new $28 million facility when it opens in June. Dick Montgomery, chief information officer at Loma Linda, is leading systems planning at the hospital, which is getting free computers from Data General Corp. and IBM.

Loma Linda is working with the Zhejiang Provincial Government, Zhejiang Medical Center and Sir Run Run Shaw, a Hong Kong philanthropist and entrepreneur who has pledged $14 million to the project. The Zhejiang government agreed to match that donation.

Medical care for average Chinese citizens is slow and piecemeal at best, dangerous at worst, according to Fang. But computers can change that, he said.

Right now, between 2,500 and 3,000 people per day are shuttled through the country's walk-in clinic system on a first-come, first-served basis, he said. And when hospitals admit patients, they are held there too long.

"There is little organization, ways to keep track of who is at what stage of treatment," Fang said.

Jerry Valente

Thousands are shuttled *through China's walk-in medical clinics daily*

Center stage at the new, Western-like medical center will be about $270,000 worth of equipment DG donated at the groundbreaking in October 1989, including an MV/20000 minicomputer and systems software. IBM also contributed an Application System/400 midrange model to run side by side with the DG box.

Montgomery, who has run Loma Linda's DG-centered information systems department for the past seven years, said he plans to use the MV as a server for various medical and administrative departments.

Many of Loma Linda's custom applications will be copied and used at Sir Run Run Shaw Hospital, including clinical and laboratory systems, a medical research database and an order-entry/billing system for patient processing. While Chinese construction workers are putting up the building itself, Montgomery and Fang have already set up the new center's computer system — at Loma Linda.

"We'll ship everything over when the building is complete," Montgomery said.

Montgomery said he plans to conduct an exchange program of sorts. Several Chinese IS workers are now training on the DG and IBM systems at Loma Linda, but he and Fang are currently looking for programmers and operations personnel in China. "Our biggest problem is not getting the two proprietary machines to talk to each other but finding skilled people," he said.

IN BRIEF

Annual loss for CDC

■ **Control Data Corp. lost $9.8 million for fiscal 1991, down 363% from 1990's profit of $2.7 million. Company Chief Executive Lawrence Perlman said "satisfactory" results in service and government business were offset by a $12 million restructuring charge and poor showings in its Computer Products and Automated Wagering lines.**

■ **Bull HN Information Systems, Inc. and Insci Corp. signed a pact to port Insci's Coinserv Data Storage and Retrieval software to Bull HN's Unix-based DPX/2 workstations. Coinserv is an optical disc system that stores and retrieves formatted output data in lieu of computer-output microfiche, computer printouts, magnetic tape and magnetic disk storage systems.**

CA Unix tool enters sites

CONTINUED FROM PAGE 53

enough that people are looking at real-world problems and expecting the type of software that existed on the mainframe side to appear in the Unix side. That's what CA is doing."

One CA mainframe customer interested in taking a closer look at Unicenter is GTE Data Services in Tampa, Fla. — the information services arm of GTE's nationwide telephone operation.

"If CA really does offer an integrated set of data administration and operations management tools, they'll be the only ones out there doing it," said Ed Reedy, a systems manager at the services center, which runs a large network of HP 9000 workstations and servers coexisting with IBM 3090 mainframes.

"CA also has the financial resources to jump in and do this in a big way, rather than piecemeal," Reedy added.

Users at other IBM mainframe shops are also paying attention to CA's overall Unix strategy, said James Winn, a member of CA's Information User Association and a database system manager at a defense contractor in Michigan.

"At our last user conference, we had a lot of interest from IBM users who were looking at downsizing their applications," Winn said.

One sure sign of CA's commitment to Unix, Winn added, is the company's plan to first develop new products and enhancements on Unix and then port them to proprietary platforms. "As a development platform, it's easier to produce usable systems quicker on Unix," he said.

Winn's company, which he asked to leave unnamed because of its government contracts, acted as a beta-test site for CA's Unix RDBMS and generator tools, which are now shipping.

Users and analysts said they believe the Unix alliance between CA and HP will eventually prove to be a winning situation for everyone concerned.

"HP will be able to sell its Series 800 computers into commercial organizations that need management and control discipline that CA-Unicenter can add to the native Unix environment," said Ed Acly, an analyst at Technology Investment Strategies Corp. in Framingham, Mass.

CA should benefit not only from this new market for its system management products, Acly added, but also by positioning itself as a "de facto standards setter" in distributed, multiplatform environments.

Tougher Garfield emerges

CONTINUED FROM PAGE 53

corporate IS, who until July ran computers at Capcom U.S.A., a Santa Clara, Calif., electronic game maker. "I want the system to be able to run without me."

There is no overnight operations staff, Kivley said, although he and one other IS staff member dial into the AS/400 computer nightly to check on it. The AS/400 has 64M bytes of memory and uses 6.4G bytes of its 12G-byte disk limit.

The changes in staffing and equipment were part of a corporatewide plan that cut Dakin's overhead by $50 million, Kivley said. Dakin selected prepackaged financial applications from J. D. Edwards & Co. in Denver that are being slightly modified. Dakin has already installed a small AS/400 in Hong Kong that communicates with the headquarters machine via dial-up modems. Several more small machines will be added at other Asian locations.

Picking up speed

Dakin's new system can keep pace with the toy business' seasonal product cycles, as well as with changing orders from thousands of retail sites worldwide. Last year, Dakin struggled to ship 10,000 cases of dolls a month; in the first four weeks of AS/400 operation, the system pushed 17,000 cases out the door, Calkins said. "Our old system software had so many things tacked onto it that it was easier to tailor our business to the {off-the-shelf} financial packages than to reprogram every task we did."

Because the IS staff has been reduced, end users will have to do more data processing on their own. More than three-quarters of Dakin's headquarters staff have personal computers on their desks. "Users can generate reports all day long," Kivley said. However, AS/400 batch reports are still run each night.

Dakin's downsizing has forced a permanent change in the relationship between users and IS, Dakin executives said. "We had a culture of dependency on MIS," said Mark Horwitch, the firm's chief operating officer and chief financial officer. "The users were always waiting for reports to be written by programmers. They did not have any awareness or responsibility for understanding or maintaining the data."

Today, he said, the opposite is true: End users must access the AS/400's relational database, then work the numbers on Microsoft Corp. Excel spreadsheets and Microsoft Word electronic documents.

The business is feeling a positive impact. "We got a significant reduction in cost and in management overhead and a dramatic improvement in the MIS system's ability to support the business objectives," Horwitch said.

Currently, worldwide sales are edging back toward $100 million.

NEW PRODUCTS

Development tools

Suitesoftware has announced Suitedome, a distributed object management environment.

Suitedome aids communication and data access among applications in distributed computing networks. It provides access to application programming interfaces, remote procedure calls and network operating systems, allowing users to develop applications that are independent of operating system, network, format and database specifics.

Users can access and control relational and object databases and flat files. Suitedome applications can be modified at runtime.

Suitedome runs on Unix systems and Digital Equipment Corp. VAX systems. Support is planned for other platforms.

Pricing, based on the number of concurrent users, starts at $750 per node under Unix.

Suitesoftware
9879 Grandview Drive
La Mesa, Calif. 91941
(714) 938-8850

Advanced Business Language Group, Inc. has announced Rapid Automatic Programmaker (RAP), an applications development tool that generates Cobol code for five platforms.

RAP supports DOS, OS/2, Unix, CICS/MVS and OS/400. It lets users design applications through a system of menus and prompts, and it generates Cobol source code automatically.

The tool runs on personal computers. The basic kit generates DOS, OS/2 or Unix code and costs $4,485 for a single-user license.

The optional module for generating OS/400 code costs an additional $2,760; the MVS code generating module is an additional $4,830.

Advanced Business Language Group
40440 Grand River
Novi, Mich. 48375
(313) 478-4130

Utilities

Quadrant Software, Inc. has enhanced its Fastfax/400 software for the IBM Application System/400 platform.

Fastfax/400 now includes on-line fax viewing with the ability to edit cover sheets, improved on-line directories and an enhanced internal memo generator. The company also offers Fastfax/Plus, which provides advanced graphics-handling capabilities.

Pricing starts at $2,495 for Fastfax/400 and ranges up to $6,495 for Fastfax/Plus, including all features.

Quadrant Software
31 Middlesex Road
Mansfield, Mass. 02048
(508) 337-8559

Applications packages

Lawson Associates, Inc. has ported its Accounting System software to the IBM RISC System/6000 platform.

The package includes General Ledger, Accounts Payable and Receivable, Fixed Assets and Project Accounting modules. It supports multiple databases including those from Oracle Corp. and Informix Software, Inc.

Pricing is based on the number of simultaneous users and starts at $20,000.

Lawson Associates
1300 Godward St.
Minneapolis, Minn. 55413
(612) 379-2633

Data storage

Storage Technology Corp. has designed new 18-track cartridge subsystems for IBM Application System/400 and RISC System/6000 computers.

The Storagetek 4224 ($19,700) is IBM 3480-compatible and is made up of one controller and one cartridge drive. It attaches to the AS/400 via the 2602, 2607, 2608, 2621, 2647 and 2648 features and to the RS/6000 via the 2835 feature. An automatic multiple tape loader is available.

The Storagetek 4284 ($24,500) is similar to the 4224 but has the option of one or two cartridge drives.

Storage Technology
2270 S. 88th St.
Louisville, Colo. 80028
(303) 673-5151

Gigatrend, Inc. is shipping the Turbosafedat SL 5G-byte digital audio tape drive for the IBM Application System/400.

The drive features automatic compressed and uncompressed data storage. It improves on the performance of previous Turbosafedat models by as much as 20%, the company said.

It attaches to AS/400 9404 models directly and to 9406 models via the 2601, 2602, 2607, 2608 and 2621 features.

Prices start at $6,450.

Gigatrend
2234 Rutherford Road
Carlsbad, Calif. 92008
(619) 931-9122

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Check out the Product Showcase on Page 88.

Computerworld's 1992 I/S Brand Preference Study on Wide Area Networks

Top Scoring Companies

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Best Technology	AT&T/Paradyne
Best Price/Performance	Motorola Codex
Best Service/Support	AT&T/Paradyne
Best Documentation	AT&T/Paradyne
Prefer To Do Business With	AT&T/Paradyne

CSU/DSU

Best Technology	AT&T/Paradyne
Best Price/Performance	AT&T/Paradyne
Best Service/Support	AT&T/Paradyne
Best Documentation	AT&T/Paradyne
Prefer To Do Business With	AT&T/Paradyne

V.32/V.32bis Modems

Best Technology	Hayes Microcomputer
Best Price/Performance	U.S. Robotics/Courier & Hayes Microcomputer
Best Service/Support	Hayes Microcomputer
Best Documentation	Hayes Microcomputer
Prefer To Do Business With	Hayes Microcomputer

V.42/V.42bis Modems

Best Technology	Hayes Microcomputer
Best Price/Performance	U.S. Robotics/Courier
Best Service/Support	Motorola Codex
Best Documentation	Hayes Microcomputer
Prefer To Do Business With	Motorola Codex & Hayes Microcomputer

Protocol Converters

Best Technology	Blackbox Corporation
Best Price/Performance	Blackbox Corporation
Best Service/Support	Blackbox Corporation
Best Documentation	Blackbox Corporation
Prefer To Do Business With	Blackbox Corporation

Centrex/Central Office Switch

Best Technology	AT&T Network Systems
Best Price/Performance	Northern Telecom
Best Service/Support	AT&T Network Systems
Best Documentation	AT&T Network Systems
Prefer To Do Business With	AT&T Network Systems

Facsimile Machines

Best Technology	AT&T
Best Price/Performance	Canon USA
Best Service/Support	AT&T
Best Documentation	AT&T
Prefer To Do Business With	AT&T

Satellite Carriers

Best Technology	AT&T/Tridom
Best Price/Performance	AT&T/Tridom
Best Service/Support	AT&T/Tridom
Best Documentation	AT&T/Tridom
Prefer To Do Business With	AT&T/Tridom

Value-Added Carriers

Best Technology	Compuserve
Best Price/Performance	Compuserve
Best Service/Support	Compuserve
Best Documentation	Compuserve
Prefer To Do Business With	Compuserve

Common Carriers

Best Technology	AT&T
Best Price/Performance	AT&T
Best Service/Support	AT&T
Best Documentation	AT&T
Prefer To Do Business With	AT&T

Diagnostic/Test Equipment

Best Technology	Hewlett-Packard
Best Price/Performance	Hewlett-Packard
Best Service/Support	Hewlett-Packard
Best Documentation	Hewlett-Packard
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Frame Relay Transmission

Best Technology	Motorola Codex
Best Price/Performance	Racal-Datacom
Best Service/Support	Motorola Codex
Best Documentation	Motorola Codex
Prefer To Do Business With	Motorola Codex

PBX Equipment

Best Technology	AT&T
Best Price/Performance	AT&T
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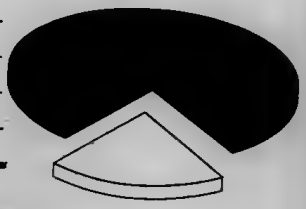

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23. Dir./Mgr. Sys. Development, Sys. Architecture
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60. Sys. Integrators/VARs/Consulting Mgt.

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41. Engineering, Scientific, R&D, Tech. Mgt.
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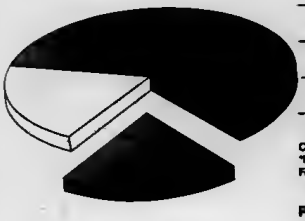

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Buyer, be aware

Laptops, pen-based systems and others technologies are easy to buy but tougher to make pay off. Five companies share their approaches.

AAL's *Steve Weber (left) and Kevin Van Eron decided the best solution was to outsource sales systems. See story page 63.*

BY ALAN RADDING
AND JOSEPH MAGLITTA

A sales representative strides into a customer's office with a sample case, a smile, a good shoe shine and a laptop computer. With a few seconds of clacking, ship dates are presented to an impressed client. The representative starts whistling *We're in the Money* to himself. But not so fast.

At first knock, palmtops, cellular phones and modems and portables faxes and printers sound like a salesman's dream — exciting tools for the new "mobile" office. But increasingly, companies are discovering that sales force automation involves more than simply tossing a laptop to a representative and saying, "Here's your new computer. Go out and bring back more business."

Indeed, information systems managers and consultants say many organizations are finding it more difficult than they expected to reap the hoped-for 30% and 40% sales increases from automation. They cite complex organizational and cultural issues that slow down the payback of laptops and other popular new products.

"The technology for sales force automation . . . is far ahead of the business implementation," says Harry Gilliam, president of Sales and Marketing Systems, Inc. in Vienna, Va. Experts say the problem is not a lack of products, with the exception of some software categories.

Indeed, a steady stream of products and technologies aimed in part or wholly at sales automation continues unabated. Prices for notebook and laptop computers continue to fall, and new pen-based systems appear almost monthly. Dataquest, Inc. projects that 1.9 million laptop and notebook computers will be sold in the U.S. in 1993 — a 270% increase from 1988.

Lack of interest is certainly not a problem; companies in diverse industries such as insurance, manufacturing, utilities, pharmaceuticals and others are scrambling to computerize their sales forces. A recent Louis Harris poll of 300 chief executive officers and chief information officers found that sales and marketing automation will be one of the Top 3 technology priorities through 1996.

According to International Data Corp., a Framingham, Mass.-based research and consulting firm, worldwide sales of U.S.-produced sales automation products should increase 35% in 1992, to about $139 million. Frito-Lay, Inc., Pitney Bowes, Inc., Helene Curtis, Inc., Mobil Oil Corp. and Federal Express Corp. are among the legions of firms that have undertaken high-profile automation projects.

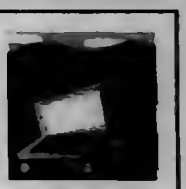
The reason for all the attention is easy to understand: Properly handled, sales force automation systems can boost individual sales productivity and morale (see chart page 62). A laptop-equipped sales representative, for example, can place orders, check product availability or confirm shipping dates right from a customer's office with a few key taps or pen strokes. Michael Treacy, an independent consultant in Cambridge, Mass., notes other benefits: reduced paperwork and administrative chores, better targeted calls and improved preparation and sales aids.

But consultants and IS managers say that all-too-familiar nontechnology issues are the biggest obstacles preventing sales systems from improving the bottom line. Both groups say companies are relearning two key lessons: First, all the technological goodies in the world don't matter a bit if you don't have the culture and structure behind them. Second, poorly integrated systems are of little value and may even be counterproductive.

"The value added in any sales automation sys-

Continued on page 62

Radding is a free-lance writer in Newton, Mass. Maglitta is a *Computerworld* senior editor, features.



Sales Automation

KEY POINTS

▶Complex organizational and cultural issues have slowed expected paybacks from laptops and other sales force automation tools.

▶Biggest roadblocks include poor integration, high costs, lack of supporting architecture and hostile user attitudes.

▶Firms tackle problems differently. Shoppers Drug, for example, is using an integration with a three-phase rollout. Texaco Lubricants continues its automation efforts with a pilot project to test cellular modems.

▶After two failed attempts, the Aid Association for Lutherans reports a 14% sales increase among its agents as a result of outsourcing its sales automation systems. See story page 63.

▶Companies planning sales systems need to keep an eye on the future, warns Gerald P. Michalski, vice president of New Science Associates. See story page 64.

QUOTABLE:

"Technology won't fix a bad sales process."

Gil Cargill
IDC Group

Laptops, pen-based systems easy to buy but tougher to make pay off

CONTINUED FROM PAGE 61

tem is the *information*," says Barton Goldenberg, president of Information Systems Marketing, Inc., a Washington, D.C.-based consultancy. In other words, sales systems not linked to marketing, inventory, shipping or credit aren't meeting their full potential.

A new study of laptop-equipped sales forces by Texas Christian University in Forth Worth, Texas, confirms what many companies already know: It's easier to buy laptops than to make them pay off. While two-thirds of the 200 firms surveyed reported that laptops improved sales productivity and morale, researchers found that their use often did not accompany a rise in profits (see chart below).

But if U.S. companies are to prosper in a global economy, better, more integrated systems are key. "In the 1990s, marketing and sales is becoming an 'information monorail,'" says Van Mayros, president of Infomarketing, Inc., a sales and marketing consultancy in Tampa, Fla. He describes a "complete, closed circuit which allows intelligence to flow from the field to headquarters and back."

Mayros and others warn that firms lacking this kind of easy information sharing in coming years will be eating the dust of smarter, better linked, technologically savvier competitors, both domestic and foreign.

So how can companies get around these pitfalls? The first step, according to IS managers and consultants, is to recognize common obstacles. Among the biggest are high costs (estimated by the Harvard Business School to be $4,000 to $7,000 or more per sales rep), lack of a supporting, companywide architecture, user attitudes and inadequate experience with sales systems.

Tough problems, varied answers

One of the biggest dangers, Gilliam says, is taking a piecemeal approach. Typically, a company will get excited about sales force automation, he says, and rush out to buy 50 notebook personal computers and 50 software packages.

"But that hardly ever works," he notes, because the home office usually lacks any system to take advantage of information generated in the field.

Even where back-office systems exist, sales departments often lack the funding to finance an automation effort.

To beat the piecemeal problem, Shoppers Drug Mart in Willowdale, Ontario, a 670-store chain, is rolling out its new field sales force automation in three planned phases, according to Wayne Ground, director of systems development.

The first phase, which began in March 1991, gave the sales force electronic mail, a scheduler/appointment calendar, a forms generator and a communications package. The second phase, completed in September, added order entry, products and price information and lists of dealers, stores, distributors and manufacturers.

The third phase, Ground says, is scheduled for rollout later this year. The system will provide order status, store inventory, system-generated suggested order quantities and electronic stock card information.

Typically, company sales reps spend an entire day in each store checking on inventory levels and working with the manager on stocking issues. A salesman may write upwards of 40 different orders for a store, Ground explains. Now, salesmen are equipped with Grid Systems Corp. laptop computers with sales software from Envoy Systems Corp. in Waltham, Mass.

Consultants say that companies trying to maximize investments and payoffs of sales automation claim it's important to understand how such systems evolve in organizations. Typically, they say, organizations go through three distinct stages.

In the first stage, technology is used for simple communications and handling paperwork. In the second, technology is used mostly for gathering data and swapping data with the home office. In the third and most advanced stage, information is shared with other departments. Experts say most companies are in the first two stages, although smart firms are working their way up the chain.

Texaco Lubricants Co. in Houston is a good example of a company that is continuing to evolve its sales automation efforts. The 200-person industrial sales team is already automated, according to Mike Hall, manager of information technology.

Representatives use Grid Systems 286- and IBM 386-based laptops and 2,400 bit/sec. modems and software from Envoy Systems to review marketing reports and customer information from the field, handle sales-call reporting and perform a variety of messaging. But that's not enough, Hall says.

The company is adding the ability to place orders electronically and perform customer surveys and is investigating new technologies. "We'd like to be able to use light pens and bar-code scanners in the field," Hall explains, so that reps can check inventory and place orders on the spot.

Also, a pilot program to examine cellular modems is being readied for later this year. If prices are low enough, Hall says, the cellular modems will be tested by the company's national account representatives to determine reliability and frequency of use.

If an organization's sales effort or sales management is flawed or if the quality of the sales force is poor, however, even the most advanced technology won't help.

"Technology won't fix a bad sales process," says Gil Cargill, president of Los Angeles-based IDK Group, Inc., a sales productivity consulting firm.

A poor sales process was the case at Independence Blue Cross in Philadelphia. When Jess NiCastro came on-board to automate the 40 field reps at the health care provider, he quicky discovered that the problem wasn't with technology.

"We were not customer-focused. We had poor sales habits," recalls NiCastro, vice president of market research and development. The company lacked a true marketing function, he adds, and was consequently offering products not attuned to the market.

After a long, steady slide in market share, a new CEO arrived determined to make changes. NiCastro was hired to implement a sales automation system that would empower sales reps and capture information on customer needs for use in developing new products.

Without support from the IS department, NiCastro constructed a system based on Compaq Computer Corp.'s 386SX laptops, 2,400 bit/sec. modems and communications and information-gathering software. The laptops linked via PC local-area networks to an Oracle Corp. marketing database and corporate mainframe at the home office.

"The technology was right there," NiCastro says. "All we had to do was connect the dots." Unfortunately, that was easier said than done. The system was completed in July, but NiCastro says it was the end of the year before people were actually using it.

"We had to do a lot of culture changing and training," he explains. Initially, about 80% of the sales force resisted the system. In fact, opposition was so intense that it took the CEO and top management five months to gain the system acceptance. "There was a good deal of turnover," he says.

But the efforts paid off: The system went on-line last month.

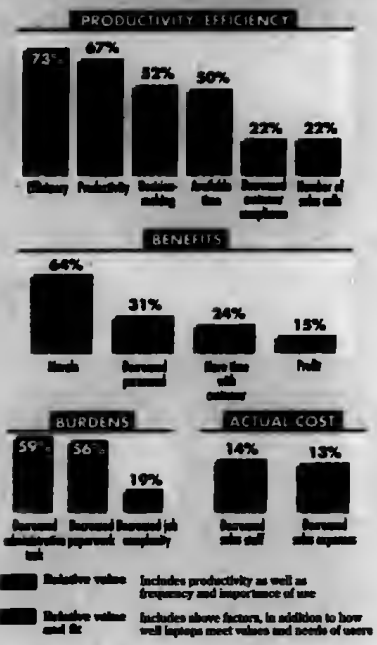
Eventually, NiCastro says, the system will anchor an entire sales and marketing

Western Publishing's *IS supervisor Jeffrey Beyer and consumer product manager/IS Sue Lines are providing laptops so sales reps will have up-to-date data*

Study: Laptops boost productivity

More than half of the 200 manufacturing companies polled reported improved productivity as a result of using laptops

Percent of respondents noticing change
(Based on a survey of 200 U.S. manufacturing companies)



Source: Texas Christian University

CW Chart: Janell Genovese

information system that will use an expert application to create proposals based on customer, product, market and competitive information, for instance.

Amidst big companywide process changes, response to the system has been mixed, NiCastro says. However, he sees positive signs. "Our new vice president of sales sees this system as an effective tool for attracting high-quality salepeople. The system sends a clear signal that we are committed to high-quality sales."

And, NiCastro adds, there have also been short-term payoffs with refocusing. "Having information in electronic form has eliminated 10 forms we used to have to input," he says.

By better linking systems, Infomarketing's Mayros says, companies can enjoy a solid return on investment — 10% to 30% or more.

Sue Lines, consumer product manager/IS at Western Publishing Co., agrees. "Marketing needs information from our salespeople," says Lines, whose Racine, Wis., firm is the largest U.S. publisher of children's books. "They need to know what titles are hot, the reception of promotions and what the competition is doing."

In the past, Western used lengthy paper surveys to gather key information. But information was often outdated by the time survey forms were developed, distributed to the 110-person field sales force, completed, returned to headquarters and analyzed, she says.

So Western is now installing a laptop-based field system that builds on the telemarketing system now used by its telemarketing representatives. The company will add a field sales force automation module from Brock Control Systems, Inc. in Atlanta to handle call preparation and various administrative functions. It will also give field reps up-to-date customer information and order status data and will provide a new link for gathering customer and market intelligence, she says.

The goals, Lines says, are to eliminate paper and improve contact management communications and data synchronization among sales and marketing people.

Future obstacles

Even though companies are adopting a wide variety of tactics to keep sales automation efforts on track, users and consultants say big challenges loom ahead.

For starters, sales software must go a long way to catch up with the current flood of hardware products. Many existing products lack the functionality needed to serve the entire sales team adequately, Sales and Marketing Systems' Gilliam notes. To remedy this, he foresees a need for more modular, easily integratable software that would combine call management, customer information, product data, competitive data, decision support, order status, marketing data and other key functions.

Information Systems Marketing's Goldenberg says he also believes that sales software vendors have a lot of work to do. He recently analyzed some 600 off-the-shelf sales products. The result? "Ninety-five percent of all these packages were call assistance only," he says. While these packages may improve individual sales productivity by making administrative functions easier, they are not up to heavy use on big, multiuser corporate systems.

Plus, many companies might find it difficult to leap to the next generation of technology, thanks to sizable investments in older systems.

That's the case at Brown & Williamson Tobacco Corp., a Louisville, Ky.-based distributor of cigarettes. The company uses older, non-DOS Panasonic JT-770 handheld computers with custom software from Sales Technologies, Inc. in Atlanta, explains Steven Jones, client systems manager.

The small, handheld systems are employed by some 1,650 representatives to record all inventory stocking and promotional activity, Jones says. At the end of the day, information is downloaded from the handheld system to an Epson America, Inc. LT286 laptop, then transmitted by 2,400 bit/sec. modem to a corporate host system. Reps also receive headquarters information via the laptop.

Jones would like to switch to newer technology but says the time isn't right. "Palmtop, pen-based systems look like the way to go down the road," he says. But available products are still too large and costly.

Finally, the Texas Christian University study suggests that groups pitching sales automation systems might face a tougher sell than in the past. "The lack of tangible benefits of laptops," the authors conclude, "could have a negative impact on . . . management support — budgetary or otherwise."

The bottom line is this: Unless more U.S. companies and individuals advance beyond letter writing, scheduling and other mundane tasks into more important functions, such as order taking and inventory checking, sales automation will be nothing more than expensive technological sizzle. •

Lutheran insurance group outsources, ups sales

BY ARIELLE EMMETT

Steve Weber doesn't lose sleep anymore worrying about how to automate the field sales force for the Aid Association for Lutherans (AAL), an Appleton, Wis.-based fraternal insurance and benefits society.

After several unsuccessful attempts at automation — including saddling the society's 2,000 insurance sales representatives with 25-pound "portable" computers — AAL hired an outsourcer to handle the job, and sales are up 14%.

Weber, vice president of technology services for the AAL, which had $1.4 billion premium income and $9 billion in assets in 1991, says there was no question that outside help was needed to automate effectively. "We're not a technology company or a computer services company," he says.

So the society hired Data One, a Moline, Ill.-based field resource management company, as prime contractor on a $12 million automation project that began last June.

AAL's experience is part of what consultants say could be an emerging trend: large organizations outsourcing their sales and marketing automation. There are no accurate estimates of how many companies have taken this route, although about a dozen companies now provide sales/marketing outsourcing.

Headache remedy

The trend makes sense, says Clare Gillan, an analyst at Framingham, Mass.-based International Data Corp. "People are still trying to figure out how to best optimize their sales force solutions," Gillan says. If someone can come in and remove the headache, she adds, life can be easier.

Proponents say outsourcing field automation offers many of the benefits of more conventional data center outsourcing: reduced staffing and technology costs, better and newer software and easier hardware and maintenance services. Automation firms "have much more leverage than we do," Weber says, which can translate into deeper discounts on volume purchases from computer vendors.

However, sales outsourcing isn't a panacea, warns Ronald Glassner, chief executive officer at Data One, an $18 million subsidiary of Dallas-based holding company Spectrum Information Technologies, whose customers include Johnson & Johnson and Bantam Doubleday Dell Publishing Group, Inc.

"You have to change the infrastructure," Glassner says. "You can't just throw computers at it."

At AAL, the outsourcing firm negotiated with Toshiba America Information Systems, Inc. for the 2,250 T-2000SX notebook computers and loaded them with customised insurance software written in-house by AAL programmers.

Michael Abramson

AAL's Weber: *Selling management on the idea of automation was fairly easy*

By September, systems were distributed to AAL agents, complete with software for electronic mail, financial planning, customer management databases, insurance applications and point-of-sale insurance presentations. By October, training was completed.

Data One continues to support AAL's computers with maintenance, warranty and inventory tracking services for its $10 million portion of the project.

Besides increased sales, Weber says, time to distribute or repair malfunctioning equipment in the field has been cut from two weeks to two or three days.

Weber says selling management on the idea of outsourcing was fairly easy.

CLOSE-UP

Company: Aid Association for Lutherans.

Goal: Boost flat sales and improve productivity of 2,000-member sales force via technology.

Strategy: Hire outside contractor to plan and implement notebook-based field sales system.

Payoff: Sales up 14%, E-mail used by 98% of sales reps.

Sales had been flat for a few years, and two earlier efforts at sales automation had failed. AAL distributed Keypact thumbwheel-switching terminals to agents in the early '80s. The idea was to let representatives transmit financial planning and client information to corporate headquarters via modem.

Next followed 25-pound Data General Corp. portables, which were so heavy that agents were reluctant to carry them. The society had switched to Toshiba laptop computers when it began working with Data One.

A corporate decision was made to retool the sales force and develop a new E-mail network. Making the right management decisions to boost sales, however — including getting outside help, additional training and changing management styles — proved a bit tougher.

Data One was among several vendors interviewed, and it won because it was "cost-competitive and had good references," Weber says. The firm then subcontracted Hopedale, Mass.-based Technical & Logistical Consultants to implement a wide-area network.

Pleased with benefits

Weber considers the new systems a success. "Agents now get the benefit of reduced weight, speed, portability and the ability to run illustrations [on their notebook computers] much faster. The network gives them access to information more rapidly to get their service questions answered," he says.

A recent survey of the automation system and network conducted three weeks after the agents received training found that 98% of sales reps were using the E-mail capability, Weber reports.

Kevin Van Eron, AAL's vice president of member field services, adds that the new system has given AAL faster delivery of computers and better control of maintenance.

Because computers are leased rather than owned by agents, systems can be replaced and given to new employees more quickly, Van Eron says. Hardware, software and network maintenance are also consolidated under one single lease assigned to each agent, making it easier to obtain service.

Overall, Weber and Van Eron agree that outsourcing was the right move. "Now we have people who are accomplishing more in less time," Van Eron says. "The sales force is motivated, there is less paper, and things are working more effectively." •

Emmett is a free-lance writer based in Hewitt, N.J.

Next steps: Toward wall-less offices

While many companies today are rushing to automate their sales operations, it's crucial to take a longer view, says Gerald P. Michalski, vice president of New Science Associates, Inc. in Southport, Conn. Michalski, director of the firm's Continuous Information Environments Research Service, recently spoke with Computerworld *associate editor Alan J. Ryan on the next stages of sales automation.*

Q How far have we come on the evolutionary scale of sales force automation?

A Quite far. Many sales forces are using laptop or handheld computers to qualify prospects, poll mainframe information or process orders. But we have quite a ways to go toward simpler systems that transform the sales situation itself.

Q What would a logical next step be for most companies?

A Some companies are already investigating moving their software to technologies like pen-based systems. Many have already incorporated or are about to incorporate wireless communications — either cellular modems or wireless packet data systems.

Q Your research focuses on something called "continuous information environments" (CIE). What are they?

A CIEs might have once been called portable computing and mobile communications, but that wasn't quite descriptive enough. So we broadened it to include platforms of the future, whether they have a keyboard, a pen, speech recognition or a mouse and [Microsoft Corp.'s] Windows. Evidence of CIE in the market are things like [Sharp Corp.'s] Wizard, notebooks, pocket organizers, cellular phones and pen computers.

Q What's the goal in studying CIEs?

A The idea was to take those platforms of the future . . . to take the physical connections such as wireless networks and the information connections such as E-mail, voice mail, fax services, file transfer and videoconferencing . . . then push that environment beyond personal productivity.

Q How does that differ from what is happening right now?

A Today, when you get up from your desk and walk down the hall, you become disconnected. Why should group conferencing work if 30% of the people you are trying to schedule are away from their terminals 80% of the day? If the person you want to schedule a meeting with is carrying a pocket data terminal, they can let you know whether or not they can attend the meeting by looking at a schedule on these personal communications devices.

Michalski: *Some 'companies looking at buying laptops should reconsider'*

Q What do you see as the real benefits?

A There are two sides to CIE. One is what is in people's hands that makes their life easier day to day. The other side is the infrastructure, which should be invisible to end users. I shouldn't have to worry about whether or not I am connected to the network at any moment. I shouldn't have to worry about what format a document was sent to me in. I shouldn't have to worry about finding a person's fax number if I already have their phone number.

Q How does CIE relate to sales force automation?

A The ideal audience for CIE is a company that has a large body of people in the field all the time. The most visible of those are salespeople. So whether [field personnel] need a laptop or a pen machine or a phone or a fax, they very likely also need to connect back to a host computer.

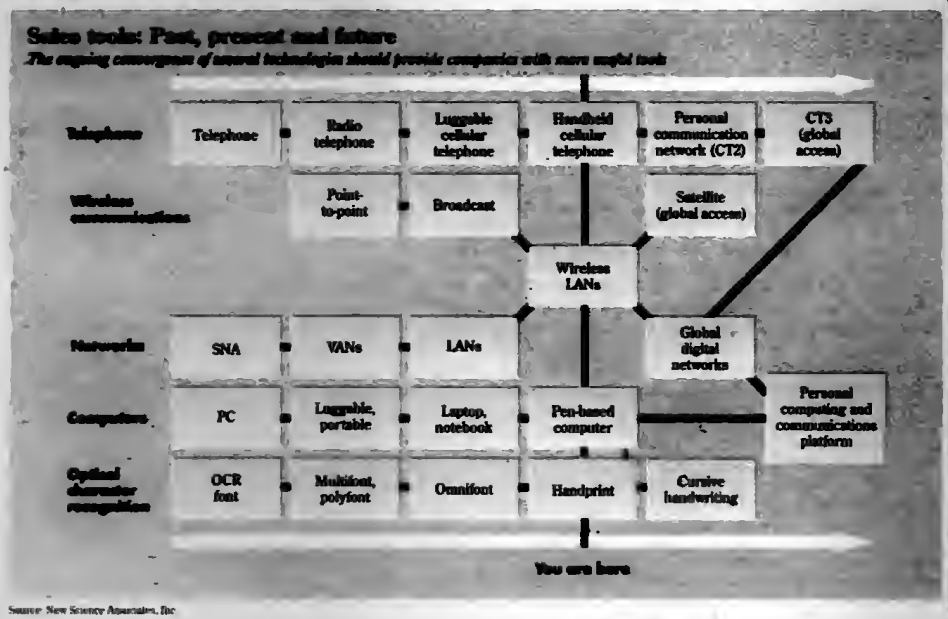
And the different component technologies here — like remote communications software, wireless data communications and other sales force automation scheduling systems, as well as things like interactive voice response or transaction processing — are critically important.

Q As a step toward CIE, are there any technologies that companies should be acquiring right now?

A In some cases, companies looking at buying laptops should reconsider. They might not want to spend $3,000 to $10,000 per employee on laptops if they can get more benefit by [investing in] the next generation.

Today, pen systems are in their very early stages. So the whole reason to wait for a year and a half to two years is to allow that industry to mature.

One thing that could be done in the interim is using voice reponse or fax response technology. That is an alternative that would work for some companies until the pen-based systems mature. ●



Source: New Science Associates, Inc

Simware, Inc. in Ottawa, Ontario, inked a strategic marketing agreement with **Ericsson GE** that gives field users access to corporate mainframe applications and data. Ericsson GE will provide vehicle-mounted radio modems and future portable products to let Simware software communicate over Mobitex mobile data networks in the U.S. and Canada. In addition, Simware is packaging a new software product for Mobitex users that combines Simware's Splitsecond software for faster laptop-to-mainframe data communications with its SimPC software for simplified access to IBM mainframe applications.

Oracle Corp. announced a partnership to form a cellular data broadcasting network with **McCaw Cellular, Inc.**, the nation's largest cellular phone carrier. The system will use radio frequencies for cellular phones and will target mobile workers and office staffers. The goal is to provide lower cost communications than traditional phone lines. Oracle is reportedly looking for similar agreements in Europe and Asia.

Representatives from nations worldwide convened in Spain on Feb. 2 for a month-long battle over the global radio spectrum and new mobile communications services. The U.S. sent a 54-member delegation to the **World Administrative Radio Conference** to fend off a European push for a new global bandwidth allocation for personal communications network services. In addition, the U.S. delegation will be spearheading a drive to reallocate radio spectrum to support low-earth orbit satellites.

Articles on sales force automation that have appeared in *Computerworld* during the last 12 months include the following:

▶**"Laptops make sales force shine"**
PCs & Workstations
Aug. 12, 1991, page 35

▶**"Pen-based computing breaking through"**
PCs & Workstations
July 29, 1991, page 37

▶**"Portables and laptops"**
Product Spotlight
June 24, 1991, page 83

▶**"Satellite firm automates sales force"**
PCs & Workstations
April 22, 1991, page 40

▶**"AT&T set to unveil upscale notebook PC"**
News
April 8, 1991, page 95

▶**"Metamorphosis of the salesperson"**
Product Spotlight
April 8, 1991, page 59

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Fall of the house of Wang

Wang Labs went from a decade of 40% growth to near bankruptcy, a decline fueled by a mix of nepotism and shortsightedness

BY CHARLES C. KENNEY

An Wang did not look well. Though he was 69 years old, he was normally in robust health, as vibrant and energetic as any 35-year-old. And though he was just 5 ft., 6 in. tall, 130 pounds, his reputation was enormous — easily large enough to imbue this diminutive man with a formidable presence.

But late on this humid summer afternoon — Aug. 4, 1989 — with the temperature pushing 90 degrees and a toxic-looking haze blanketing greater Boston, An Wang appeared alarmingly slight and shrunken. His voice sounded as feeble as his body looked. Although he was a terse man who spoke in broken English with a thick Chinese accent and sometimes a stutter, his words generally carried a quiet strength. On this sultry day, his words came in a croak, a guttural echo of Brando as Don Corleone.

Bob Fredericks/Globe

An Wang's ***dream was to pass on his empire to his son Fred***

His condition, in view of what he had been through, was not surprising. Just 21 days earlier, Wang had endured 10 hours of punishing surgery, during which a malignant tumor had been removed from his throat. The diagnosis was esophageal cancer, a deadly disease.

But something worse than that was on An Wang's mind this Friday afternoon, worse at least to a Chinese man steeped, as An Wang was, in the tradition of Confucius, the philosopher whose teachings had guided the lives of billions of Chinese through the ages. Wang's task on this day was as difficult as anything he had ever faced in his extraordinary life. An Wang held dear the Confucian teachings on which he had been raised, teachings that all but sanctified the relationship between father and son. Now, as he neared the end of his life, An Wang was about to do violence to that most sacred of relationships.

He had little choice. His company, Wang Laboratories, Inc., which only a few years earlier had been one of the great business success stories in the world, verged on utter collapse. With his son Frederick as president, the company had just sustained a stunning $424 million loss for the fiscal year. In only a matter of years, his company's stock had lost more than 90% of its value in the greatest boom market in history.

An Wang's dream had long been to pass on his corporate empire and to have it flourish under the guidance of his two sons.

But it was not to be. This dream that had seemed so tantalizingly close had become a nightmare. On this very day, An Wang would fire his son.

The son come first

Nine months after Fred Wang's birth in September 1950, An Wang boldly shucked the security of academia and struck out on his own. In founding Wang Labs, he would not only have to overcome the formidable odds stacked against any new venture, but he would also have to combat the mistrust of Asians that was so fresh in the minds of Americans during the postwar years.

From the very start, Wang Labs was a reflection of this persistent, unflaggingly optimistic man. His was an unshakable confidence accumulated over time, a belief that he could succeed no matter what the odds or the environment. The foundation of his steely certainty had been laid during one of the most turbulent times in one of the most turbulent places in world history. From the early 1920s until the mid-1940s in China, An Wang had survived the savage civil war between the Nationalists and the Communists, the murderous slaughter of the invading Japanese and the loss of half his family.

FROM 1976 TO 1983, WANG SHARES ROSE FROM $6 PER SHARE TO $600 PER SHARE. AN INVESTMENT OF JUST LESS THAN $8,000 IN 1976 WOULD HAVE GROWN TO $1 MILLION BY 1983.

Few of Wang's friends in the U.S. knew anything at all about his life in China. Wang was an intensely private, even secretive man. Even men who had worked closely with him for half a lifetime had no idea that he had been married in China before coming to the U.S.

After making his way to America at the age of 25, Wang had quickly earned a Ph.D. from Harvard University. At the prestigious Harvard Computation Laboratory, Wang worked on the cutting edge of the world computer revolution, proving as he did so that he was not at all out of place in a field that had attracted some of the great minds of the age. Surely there were others with as much sheer brainpower as Wang, but few had his combination of brains and determination.

Physically, he was in fact rather ordinary looking. More often than not, a smile appeared on his full, oval face. He would often bow his head in a quick, jerky motion of greeting.

But the Doctor, as Wang was almost universally known, was as impressive intellectually as he was unimpressive physically. After Harvard, Wang led his company through a dozen years of moderate success. But the company's plodding days were over when Wang's breakthrough invention in 1964 of a precursor to the modern desktop calculator caught the fancy of the engineering and scientific worlds. Suddenly, Wang calculators were selling by the truckload, and when Wall Street discovered the company, Wang Labs went public as one of the most celebrated stocks of the late 1960s, opening its first *day* of trading at 12½ and closing at 40.

DURING FRED'S FOUR YEARS AT THE HELM, THE COMPANY SUFFERED A NET LOSS OF $351 MILLION.

Later, it was the invention of a pioneering new computer — the Wang Word Processing System — that propelled the company through its greatest years. Revenue doubled every other year for six years, and from just

Continued on page 68

Kenney is a business writer at *The Boston Globe*. This is an excerpt from his book *Riding the Runaway Horse: The Rise and Decline of Wang Laboratories*, copyright 1992 by Charles C. Kenney. Reprinted by permission of Little, Brown and Co.

Continued from page 67

1977 to 1982, Wang grew nearly tenfold. The work force exploded at an astounding rate — from 4,000 to 24,800 in just five years. In 1976, Wang wasn't even in the Top 50 of the country's computer companies. By 1981, it had climbed to No. 11.

The giant killer

The people at Wang began to believe that anything was possible, and in the computer industry, anything could only mean one thing: overtaking IBM.

So fervently did An Wang believe in this destiny for his company that be kept a secret chart plotting the growth of his company against IBM and projecting that Wang Labs would overtake the international behemoth in the mid-1990s.

Why not believe in such madness? Hadn't the company proved it could do anything? Hadn't it proved to be one of the greatest stocks ever? From 1976 to 1983, the effective price of Wang shares climbed from $6 to $800 per share. An Wang's 59 million shares, worth $2.3 billion, made him one of the wealthiest men in the country.

> THE LOSSES AT WANG IN 1987 AND 1989 WERE SO LARGE, THEY NEARLY WIPED OUT THE MASSIVE GAINS MADE DURING ALL THE GLORY YEARS.

He had been so right for so many years that there grew around him an aura of invincibility. He could see the future, it was said — and for years, he had. From Shanghai to Lowell, Mass., he went from having nothing to ruling one of the fastest growing Fortune 250 companies in history. In the process he became a deity of sorts, a man who could not err. He became a certified Great Man — a man of genius, accomplishment and vast wealth.

But the truth was that be cared little about the wealth or its trappings. His only indulgence was a fondness — a fondness keen enough to cause concern within his family — for the Chivas Regal he enjoyed daily, often at lunch as well as dinner.

He was happiest with his ever-present pad of graph paper in hand, thinking, jotting notes and ideas. The truth was that An Wang had one pure passion and one pure passion only, and that was his beloved company.

In many respects, An Wang *was* the company. To know his company and its story is to know him.

An issue of control

An Wang's downfall was rooted not in greed but in his obsessive desire for control of his company. For the Doctor, control meant that he could run the company precisely as he wished, that he could pass his empire on to his two sons, starting with the eldest, Fred. Like his father, Fred was a small man, with a thick mop of salt-and-pepper hair and an engaging smile. He had never worked anywhere except his father's company.

After graduation from St. Paul's and Brown University and working summers at Wang Labs, Fred was rotated by his father through a series of assignments designed to expose him to every aspect of the business, all in preparation for his becoming president. Before Fred took over, however, he had to deal with the one non-Asian in whom An Wang had ever vested any substantial clout — John F. Cunningham.

As he worked his way up through the company ranks, starting as a salesman in the field, John Cunningham performed each of his assignments brilliantly. He and the Doctor, working as an unlikely but remarkably simpatico team, formed the strategies that rocketed the company to such soaring heights. So close and trusting was Cunningham's relationship with the Wangs that Mrs. Wang referred to Cunningham as "our American son."

Cunningham was considered by many to be the perfect man to lead Wang Labs into the 21st century. He was smart and charismatic. But he was not what he most needed to be to reach the top and stay there at Wang Labs: He was not of An Wang's blood.

Fred Wang was barely two months past his 36th birthday when his father installed him as president of Wang Labs in November 1986. The move was hardly greeted with universal enthusiasm.

For years, there had been quiet concern about Fred. Members of the board of directors had worried that Fred did not have the experience, the judgment — the overall heft — to lead the company. Ever since the middle of the 1980s, outside directors had made repeated efforts to persuade the Doctor to bring in a professional manager — to give Fred an impressive title if need be but to avoid placing the young man in operational control of this sprawling, worldwide corporation in the thick of the most competitive industry on earth.

An Wang would not yield. To the directors he said: "He is my son. He can do it."

Fred was not president long before it was painfully clear that he could not do it. In July 1989, Fred Wang was at the helm of a company that had tumbled from a perch atop the computer world to the edge of disaster. While his father lay ill in the hospital, with the company in the midst of a crisis that threatened its very life, Fred appeared before the board of directors — a board under the absolute, unquestioned control of the Wang family — and confirmed their worst fears: He was lost. It was clear that he did not understand the magnitude of the problem. Fred described the company's problems as a "management dysfunction."

The outside directors were aghast. Peter Brooke, a brilliant venture capitalist whose association with Wang Labs went back over 30 years, was stunned by Fred's presentation. "The company was just a step away from bankruptcy, and Fred was business as usual," Brooke says. "He talked about a management dysfunction. A management dysfunction! The company is falling apart around us, and he's talking about a [expletive] management dysfunction!"

Privately but urgently, Brooke told An Wang that Fred had to go.

After An Wang's release from the hospital, Fred and two other company officials — Harry H. S. Chou, the company vice chairman, and Paul Guzzi, a close assistant to both Wangs — visited the Doctor late each afternoon to discuss the day's business.

On Friday, Aug. 4, Fred and the two other executives arrived at the Doctor's home in Lincoln, Mass., at 4 p.m.

As the four men started their meeting, it was clear that the company was in grave trouble, that the quarterly results demanded drastic change of some kind.

The old man felt he had no choice.

In the sticky heat of Friday, Aug. 4, An Wang fired his son.

Damaged goods

When he said that Fred had to leave the company, Fred was taken aback. It took a moment for him to absorb the enormity of his father's decision. He would not be a normal person being fired from a normal job. Fred's departure would be far more humiliating, for it would be front-page news. He would be damaged goods. He would be known to the world as the man who had presided over the demise of a once great corporation.

The company declines, nearly goes under, and the one personnel change that is made — the *only* management change made — is the dismissal of Fred Wang. There would be no question but that the world would think Wang Labs' collapse was Fred's fault. An Wang, by his actions, was saying as much.

As quickly as he could, Fred recovered. He had always been a good son, a dutiful son. He had always sought to please the great man who was his father, and he did so now. He accepted his father's decision.

> WANG HAD NO BUDGET UNTIL 1980. DEPARTMENT HEADS SPENT AS MUCH MONEY AS THEY FELT WAS NECESSARY.

So it was done. Fred had taken the fall, become the symbol for all that was wrong with the company. On the news of his departure, Wang stock gained 20% in value. Outsiders felt that the man responsible for the company's downfall had finally been jettisoned.

But those who knew the company well, who knew its history and its markets, who knew its strengths and weaknesses — those whose lives had been intertwined with the company — understood that the story was more complex.

They realized that Fred Wang had been a problem, had been in over his head, had obviously lacked the experience, the ability and the drive that running a company such as Wang demanded. But they also knew that Fred was not the only reason for the company's demise.

When those who knew the company best searched for an explanation, their eyes settled not on Fred Wang but on the one man who had maintained an iron grip on the company for nearly 40 years. These people wondered whether the visionary Dr. Wang might have grown a bit myopic in his later years, whether he had succumbed to the great danger inherent in running a family business — placing the family's role in the company ahead of the health of the business, ahead of tens of thousands of shareholders.

The men and women who knew the company's story saw in particular that the once flawless vision of the founder — the intellect and imagination that had brought the company to such great heights — had also resulted in a dangerous and ultimately costly overreliance on An Wang.

They wondered whether success had insulated the Doctor, had created within him the sort of arrogance that allows a man to say of one of the most powerful and successful corporations in world history, "IBM is not that formidable."

The tragedy of the Doctor

A few even wondered whether An Wang wasn't, ultimately, a tragic figure. His story, and that of his company, contained the essential elements demanded of a classical tragedy. Within the story there was conflict between the main character and a superior force in the universe. In Wang's case, the superior force was no less than the weight of thousands of years of Chinese tradition.

Most important, An Wang was a heroic character whose story ended disastrously — not through happenstance, not because outside forces intervened to rain down upon Wang some terrible fate but as a direct result of choices he freely made. It was with good reason that those who knew the company best wondered whether the man who shattered the dream of An Wang was none other than An Wang himself.

That night, An Wang did something that, for him, was terribly unusual: He phoned Fred at home to find out how he was doing.

"You OK?" the father asked.

"I'm OK," the son said.

"It was a very difficult decision," the father said.

The son said be understood.

Before he hung up, An Wang said something his son had rarely, if ever, heard from his father's lips.

Said the father to the son: "I'm sorry." ●

1951 Wang Laboratories incorporated in Boston on June 30, selling core memories for $4 apiece.

1962 Wang builds Linasec, a text-justification machine, for Compugraphic in Cambridge, Mass. Revenue hits $427,000.

1963 Revenue hits $643,000.

1964 Sales double over previous year to $1.4M. 35 employees.

1965 First Wang-only product – $65,000 logarithmic calculating instrument called Loci (LOWsigh) – hits market. Performed calculations previously reserved for mainframes. Revenue jumps to $2.5M.

1966 Introduction of 300 calculator. Broadens Wang's customer base from science and education to the commercial world of banking and insurance. Revenue hits $3.8M.

1967 Revenue climbs to $6.9M on strength of 300's sales. Wang goes public on Aug. 23. Initial public offering at $12.50 a share. Stock closes at $40.50 a share. John Cunningham, future president, joins Wang as a salesman in Chicago.

1969 Firm introduces powerful and fast 700 calculator, which eventually becomes 70% of its business.

1971 Wang introduces 1200, 'a typewriter with a brain' – basically a 700 calculator hooked up to an IBM Selectric typewriter. Printing problems with the Selectric cause return of 80% of all 1200s.

1972 Fred Wang joins company as programmer.

1973 Wang begins delivery of $8,000 easy-to-use 2200.

1974 2200 accounts for 50% of Wang revenue. Fred becomes marketing specialist.

1975 $75.8M in sales of word processing and minicomputer equipment. Wang staff begins work on Wang Word Processing System (WPS).

1976 Wang shares at $6. Cunningham in charge of advertising and public relations.

1977 VS minicomputer, modeled after IBM 360, debuts in October for commercial sites.

1978 Wang becomes largest worldwide supplier of CRT-based word processors. Company moves to

Not Fred's fault

Kenney says the decline began when An Wang reduced his involvement in R&D

It's easy now to shake your head and wonder why top executives at Wang Laboratories, Inc. didn't see it coming. The once high-flying Wang, whose stock hit $43 a share in 1983, lay nearly in ruins by 1989, when its stock plummeted to $5.75 a share. Wang currently trades at approximately $3.50 a share.

The story of the company's rise and fall is one of technical innovation, arrogance and nepotism, and its main character — the revered Doctor, An Wang — is at the center of it all. It's a "classical tragedy," writes Charles C. Kenney, who took two years off from reporting on business issues for The Boston Globe *to pen the history of the company in a book due out in March.*

Computerworld *staff writer Kim S. Nash recently talked with Kenney about how far the mighty have fallen.*

Q Was the decline of Wang Labs Fred Wang's fault?

A People who understand that company do not point to Fred Wang. They all — every one — point to An Wang. The evidence is overwhelming.

Q What was An Wang's fatal flaw? Arrogance?

A He was getting older and thought the company was so well-established that it couldn't be knocked off track. He had been so right so often that he came to believe he would make few mistakes. Arrogance is dangerous in the leader of any company, but it's particularly dangerous in the leader of s company in the most competitive industry in the world.

Q When did the company's decline begin?

A You can trace it back to 1981, when the Doctor took himself out of the most important job in the company: head of development.

Q Which is, coincidentally, the year the personal computer was introduced.

A Symbolic, isn't it? Thirty years after he starts his business — he goes for three decades as a true visionary — IBM introduces the personal computer, and his vision is blurred.

The Doctor was extremely stubborn. By that point in his career, he had become s dangerous deity, which undermined the entire operation. Arrogance crept into the organization and disrupted synergy between key players.

An Wang took his eye off the ball. He got involved in cultural and community activities, none of which played directly on the business. As the '80s passed, he devoted less and less time to work that mattered to the people who should have been top priority: shareholders and employees.

Q Was he hoping that Fred would step in there for him?

A *Planning* on Fred's stepping in there for him, even though An was advised very strongly by members of the board that it was unwise to move Fred prematurely into that position. It made no sense, given Fred's background.

Fred had worked at the company, period. He is extremely bright and able, but he was not his father.

The sin wasn't committed by the son; the sin was committed by the father.

An Wang had utterly unreasonable expectations for his son. He rotated Fred too fast through the company and placed him in charge of development too soon. And made him president too soon.

Q Wang averaged 40% growth through the decade ended in 1983. What made Wang Labs thrive for so many years?

A The Doctor could get the most out of s very diverse and talented bunch of people. Harold Koplow, Bob Siegel and Bob Kolk were creators of the Wang Word Processing System, the 2200 and the VS, respectively. These were people who, in their own ways, were mad geniuses.

There were terrible personality clashes among these men, but the Doctor worked them brilliantly and got sensational performances out of each one of them.

One of the reasons he could do that was because he was technically superior to all of them.

When he replaced himself with his son, that dynamic was completely disrupted. There commenced an internal fighting among those three scientists that only the Doctor knew how to deal with. Fred is s smart, able person, but he is not his father.

Another key to the company's success was a very strong relationship between the Doctor and former Wang President John Cunningham. Until '81 or '82, they devoted their energies not to internal politics but to things that mattered: marketing, sales, distribution.

When the company thrived, it was because everyone stuck to their knitting. They knew what they were good at and concentrated on it.

Kenney *explored the demise of Wang*

Q You set up the dichotomy between the reserved, traditional Chinese Wang family and John Cunningham, the brash, big-spending American who was a powerful force in the company as a salesman and then its president. How did that relationship work?

A If An Wang was Mr. Inside, then Cunningham was Mr. Outside. They had a strong, complementary relationship. John was very good at things the Doctor was not. John is a real leader and terrific communicator. The Doctor was very shy, with terrible interpersonal skills. The Doctor couldn't go down to Wall Street and put on a convincing show, but John could do that with great ease.

John was the public face of the company. The Doctor, of course, was the symbolic representative — the aura — of the company, but he didn't get out very much. The company marketed the cult created around the Doctor. But as is so often true with these images, it's partly true but partly myth.

Q Do you think John Cunningham might be leading the company right now if not for Fred?

A He might very well be. John worked hard to build a good relationship with An Wang for two reasons. One, it was good for John, and two, it was good for Wang Labs.

When Fred was introduced into the equation, John had s rough time. His perception was simple: I worked extremely hard and climbed the Wang ladder purely on merit.

He looked over and saw Fred, who was in his position because his name is Wang. Their relationship became unworkable.

Q Can you say, then, that if nepotism had never been a reality at Wang, the company would be in better shape right now?

A In 1981, when the Doctor wanted to remove himself from development, Wang executives toyed with the idea of doing s nationwide search for s new head of development.

They wanted to recruit Bill Demmer from Digital Equipment Corp. [Demmer is currently group vice president of VAX/VMS systems and servers.]

If An had brought in someone like that or done s search or not installed his son as president, would things have been different? Yeah.

Q In your research, did you talk to others about what Rick Miller, the company's current chairman and chief executive officer, is doing and what the prospects are for Wang's future?

A You've got to give Miller credit for taking this job. What he's done so far — selling off tangential businesses — has made some sense. Wang Labs has great imaging technology; maybe something will come of that.

For all the criticism about the IBM deal [in which IBM invested $25 million in cash in Wang, with Wang selling IBM equipment to its customers], it gives Wang credibility in the industry because people know IBM isn't going anywhere.

Miller has achieved stability. Considering the condition of Wang Labs in 1989, achieving stability is no mean feat.

Q The Doctor still influences the company, even though he's dead. Didn't he make Miller promise not to change the company's name?

A He made s very poignant personal appeal to Rick. In the final days of his life, the Doctor scribbled out a note that he sealed with hospital tape and had hand-delivered to Miller.

An Wang asked Rick to do whatever he could to keep the name, to keep the notion that an immigrant who had come here with nothing but his ability and his drive had created something great. The Doctor thought the Wang name — if it lived on — would he s reminder to people that that's possible in this country.

It's ironic, too — the arrogance of wanting to perpetuate the Wang name. By having a company named after himself, An Wang wanted not only to remind people what was possible for an immigrant but also to show what a great man he had been. •

Lowell, Mass. Fred becomes Wang WPS marketing manager. Revenue at $190M.

1978

Revenue approximately $300M boosted by WPS sales. Introduces Wang Integrated Information System, a combination of Wang WPS and VS.

1980

Revenue nearly $400M. Fred becomes head of R&D. Cunningham talks An Wang of his concern about Fred's ability as R&D chief.

1982

Revenue approximately $790M. PC revolution becomes threat to minicomputer products 2200 and WPS.

1983

Fred announces Wang Office, but it's only vaporware. (It took two years for product to actually come out.) Stock climbs to $36 a share. Cunningham becomes Wang president. 24,800 employees.

1984

$2.2B in revenue. Key scientists who found 2200, Wang WPS and VS projects quit by June over disputes with Fred. Fred's Wang Office fiasco, a $2,400 stand-alone word processor, debuts in October but can't compete with PCs. Company loses more than $30M on the product.

1985

In January, the Doctor tells Cunningham he wants to make Fred president. Stock at $28.25 a share. In April, company announces 66% decline in Q3 profits. Stock tumbles to $19 a share. Wang announces layoffs of 1,600 in June. Cunningham quits.

1986

36-year-old Fred becomes president in November.

1987

Wang posts $70.7M net earnings loss, laps off 1,000 workers.

1988

Net earnings are $92.7M.

1989

Earnings plunge $424.3M. Stock hits $5.75 a share. An Wang diagnosed with esophageal cancer in March. Fred fired on Aug. 4; Rick Miller becomes president on Aug. 23 and begins to sell off assets to pay off bank debt. Cuts one-third of work force.

1990

The Doctor dies March 24. Company reports net earnings loss of $715.9M. Work force at 19,004.

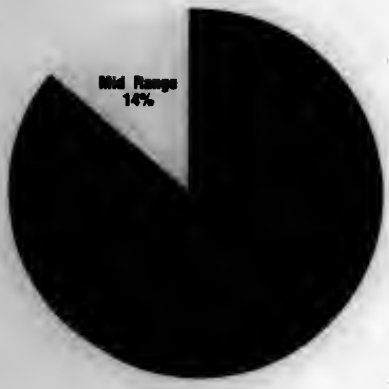
1991

Net earnings loss of $385.5M. IBM invests $25M in cash in Wang. Wang to sell IBM equipment. Work force at 16,792.

HOW DO WE KEEP

November 25, 1991
Editorial Profile

December 2, 1991
Editorial Profile



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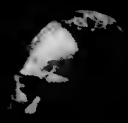

MANAGER'S JOURNAL

EXECUTIVE TRACK

Bruce J. Goodman has been named chief information officer at **Metropolitan Life Insurance Co.** in New York. He replaces veteran CIO Daniel J. Cavanagh, who was named president of Met Life's property and casualty subsidiary in Warwick, R.I. [CW, Jan. 13].

Goodman, a 22-year veteran of the company, was most recently a vice president in charge of the company's small business products department. He has held a variety of positions in several departments, including corporate information systems and personal insurance.

He holds a master's degree in electrical engineering from New York University College of Engineering.

****

Leilani E. Allen was named senior vice president of information technology at **Sears Mortgage Corp.** in Riverwoods, Ill., the mortgage unit of Sears, Roebuck and Co. and a subsidiary of the Coldwell Banker Real Estate Group.

Allen reports to J. Clarke Smith, executive vice president.

She was most recently vice president of information resource management at Aon Corp., a Chicago-based insurance firm. She has also held positions at Amdahl Corp., Boole & Babbage Institute and Visa USA and founded her own consulting firm, Knowledge Consortium.

Allen holds bachelor's and master's degrees from San Francisco State University and a Ph.D. from the University of Connecticut.

****

G. Patrick Galvin, vice president of corporate systems development at Federal Express Corp., was elected chairman of the **Electronic Data Interchange Association (EDIA)** board of directors. The appointment is effective April 1.

Galvin, an EDIA board member for several years, was section leader for the Information and Analysis Section of Fedex's successful effort to win the 1990 Malcolm Baldrige National Quality Award.

System odyssey leads to outsourcing

Blue Cross of Mass. looks to EDS for rescue from spiraling costs, sagging productivity

BY MICHAEL FITZGERALD
CW STAFF

Martin V. Joyce, senior vice president of operations at Blue Cross/Blue Shield of Massachusetts, has much in common with Greek mythological heroes.

Greek heroes often got stuck in years-long journeys filled with tortuous challenges and frightful obstacles, much like major technology projects. Then, journey completed, the hero usually found that returning to the home front and to the former status quo frequently required a miracle.

Joyce has turned to a huge outsourcing contract with Electronic Data Systems Corp. [CW, Jan. 27] in an effort to create such a miracle. His hope is that the outsourcing relationship can turn around an information systems function that had spun out of control to the tune of an estimated $100 million.

A heavily hyped, homegrown piece of technology called System 21 had become a project worthy of Pluto's realm, sucking capital and sapping IS and overall productivity levels. Even worse, Blue Cross found that in terms of meeting its business needs, System 21 was obsolete before it was complete.

System 21 was stiff. Built to meet the markets of the 1980s, it was not designed to address the boom in managed health care programs, such as health maintenance organizations (HMO). "We were building technology to meet X market, and the market starts to dry up and another one takes off, and this technology we spent all this money on isn't in a position to meet this new business need," Joyce says.

David Leder

Blue Cross' Joyce: *The technology we spent all this money on can't meet this new business need*

He adds that EDS' investment in the health care industry will help it avoid a System 21 fiasco in the future. "We expect volume-based pricing, so if there's an investment in X and business starts to dry up, we don't pay inordinate amounts for some unused base technology, and as it ramps up [in a new market], we shift our costs there, without having to worry about how to discard the old technology," Joyce says.

Many IS executives look askance at outsourcing as the solution to a systems disaster, and Joyce acknowledges that what he has done "is a pioneering effort." But he says the risk is "controllable and containable" in part because of Blue Cross' long relationship with EDS. Blue Cross has used EDS' services for its Medicare program since 1968.

"They've provided outstanding service, and [Blue Cross senior management] was comfortable with the concept out of the chute," Joyce says.

A former Coopers & Lybrand partner, Joyce joined Blue Cross in May 1991 with chief information officer duties, in addition to his operations responsibility. Despite three straight positive cash

Continued on page 76

Chase VP scales back to focus on user group

BY CLINTON WILDER
CW STAFF

After more than a decade at The Chase Manhattan Bank NA, Elaine Bond is phasing out — but she may become busier than ever.

Bond, Chase's highly respected senior vice president of corporate systems, will officially become a part-time executive in April. Bond, 57, said her decision to go part time was voluntary: She wants to devote more time to the new user group she chairs, Open User Recommended Solutions (OURS).

Announced in mid-1991, OURS is intended to bring large corporate users together to hasten vendors' moves to truly open platforms and to ensure that users' voices are heard among the standards squabbling. Its first meeting will be held March 25-27 in Salt Lake City.

"The challenge is, can we get a big enough user community together to push these issues?" Bond said in a recent interview. "If it is not a forum for everyone, it won't work."

OURS already has about 20 U.S. and overseas member companies, including Chase, Lufthansa Airlines, Levi Strauss & Co. and Pacific Gas & Electric Co. The membership fee is $5,000 for large companies, $2,000 for smaller firms and $1,000 for nonprofit organizations and universities.

Yvonne Hemsey/Gamma Liaison

Chase's Bond *wants to devote more time to user group issues*

Career change

Bond decided on her new career direction last year. In December, Chase appointed Craig D. Goldman — whom Bond had hired several years earlier — as chief information officer [CW, Dec. 23, 1991].

"I still like my business, and I like the technology, but after more than 10 years, I wanted to do something different," Bond said. OURS "gives me license to satisfy my hunger to explore some new things."

Bond's new focus at Chase will be special projects and working with vendors on open systems implementations, which she calls "a big part of our strategic direction." She said she will also seek outside consulting opportunities.

Bond, who worked at IBM for 23 years before joining Chase in 1981, acknowledged that the dream of fully integrated multiple-vendor platforms is still elusive. "I'm not in the camp that believes a single product is the answer," she said. "I gave up those aspirations long ago."

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System odyssey leads to outsourcing

CONTINUED FROM PAGE 73

flow years for the nonprofit health insurer, Joyce's mandate was an IS turnaround.

"We are a healthy company, but as a management team, we are behaving very much as though this were still a turnaround situation," Joyce says. "We're still not where we want to be in systems infrastructure, and this outsourcing is a major event for getting us where we need to be for a very solid systems foundation."

Joyce says System 21 had focused primarily on transaction processing. "But as a company, we ought to be up here working with data for analytical purposes to enhance our marketing and sales efforts and to make better and more rational business decisions about where we invest our time and energy in products and services," he says.

Cost-cutting mission

Last October, it became clear that IS spending, already higher than the company wanted, was going to rise dramatically; System 21 efforts will cost it more than $100 million, Joyce estimates. So Joyce and Joseph Fermano, senior vice president and controller, "went off on a mission" to find a viable alternative to System 21. Three months later, they announced the EDS deal.

Selecting EDS was hardly a no-brainer. Blue Cross had turned down an EDS proposal to outsource in the 1988-89 time frame, a decision Joyce says the company would probably make again under the same circumstances. "They weren't established as a total outsourcer that could do this kind of relationship," Joyce says.

However, the circumstances in 1991-92 were different. Ironically, Blue Cross had planned to end its near-20-year relationship with EDS for processing claims for doctors, which had been slated to move to System 21 this year.

"This is a reversal — and more — of that decision," Joyce says.

The details of the $800 million contract are fairly clear (see story at right), but the execution is fuzzier. The quickness of the move suggests that Joyce may have set Blue Cross up for more frustration on the systems side.

Not so, according to former colleagues at Coopers & Lybrand.

"The battlefield is littered with bodies who used sunk costs as a reason not to do something," says Stephen Mucchetti, regional managing partner for Coopers & Lybrand's management consulting services in Boston and Joyce's former boss. "It may appear to have been done quickly, but my take would be be thought about it quite seriously before be did it. He applies good business judgment to his decisions."

Joyce says Blue Cross needs to be more flexible, particularly as the nation aims for a new health care system. He also says the unusual joint-application development aspect of the agreement with EDS holds less of a risk than it might in a typical outsourcing deal because EDS has made a "significant investment in the health care marketplace."

"We were concerned that our core competency as a business ought to be world-class delivery of health-care services. But that didn't necessarily have to be spending first-dollar investments on every new application that we needed and didn't need to be running the data centers and the networks and the like," Joyce says.

A different shield

Crisis control and strategic resource deployment are nothing new to Martin V. Joyce Jr. Joyce joined Blue Cross/Blue Shield of Massachusetts in mid-June, after returning from a tour of duty in Operation Desert Storm. Joyce is a lieutenant colonel in the Rhode Island Air National Guard, for which he flies C-130 transport planes.

Joyce's unit joined Desert Shield during his normal tour of duty in January, came back at the end of January, then was officially called up in early February during Desert Storm.

Based in England, with a detachment stationed at Incirlik in southeastern Turkey, the unit flew people and supplies into the Persian Gulf war theater, then helped transport troops out after the conflict and provided relief to Kurdish refugees.

Joyce said flying during the war was less of an occupational hazard than one might think.

"It wasn't a real hostile-fire environment in the North," he said. But one of his crews did have the harrowing experience of seeing an enemy missile cross its path.

The plane "was in the air, and a missile launch occurred. It went right through the air-traffic control pattern they were in," he recalled.

More on the deal

Following are details of the 10-year, $800 million outsourcing contract between EDS and Blue Cross/Blue Shield of Massachusetts:

▶ Blue Cross will have an office of the CIO, shared jointly by Bob Hollinger, formerly vice president of applications, and Peter Carroll, EDS' senior account executive. The two will report to Senior Vice President of Operations Martin V. Joyce Jr. and will share a seat on Blue Cross' 20-member executive management team.

▶ EDS will take over 588 Blue Cross IS employees and all of Blue Cross' facilities efforts, moving much of the data processing to data centers in Camp Hill, Pa., and Plano, Texas, during the next 18 months.

▶ Blue Cross will keep 41 IS workers to focus on strategic applications development and will work with EDS employees to develop future applications. It will also retain a small group of employees to maintain System 21 while the relevant pieces of that system are transferred to EDS.

ASM honors five members

CLEVELAND — Five members of the Association for Systems Management (ASM) were recently named winners of the association's Distinguished Service Award, its highest honor. They will receive the awards at the ASM's 45th Information Systems Conference that begins May 4 in Montreal.

Those honored were:

- Judy C. Andrews, business development manager at Texas Instruments, Inc. in Plano, Texas, (ASM Dallas Metropolitan chapter).
- Darrell S. Corbin, project manager/systems analyst at The Boeing Co. in Seattle (Seattle chapter).
- David A. Lisle, applications programming manager at Ferro Corp. in Cleveland (Akron/Canton chapter).
- James H. Perry, senior programmer/analyst at JTS Computer Services in Rochester, N.Y. (Buffalo chapter).
- Michael H. Strenge, president of Productive Resources, Inc. in Aurora, Ontario (Toronto chapter).

CALENDAR

Claremont Graduate School Professor Peter F. Drucker is the featured speaker at the next CIO Perspectives Series Conference, "The Business of IT: Finding the Payoff," March 8-11 at Loews Coronado Bay in San Diego.

Other speakers include several prominent chief information officers: Patricia Wallington (Xerox Corp.), Jack Cooper (Joseph E. Seagram & Sons), Jack Livingston (National Car Rental System, Inc.) and Max Hopper (American Airlines).

To register, contact *CIO* Magazine in Framingham, Mass. (800) 366-0246.

MARCH 8-14

EDP Audit Managers Roundup XIII. Orlando, Fla., March 9-11 — Contact: Pam Barrett, Michael I. Sobol, MIS Training Institute, Framingham, Mass. (508) 879-7999.

CAD & Engineering Workstations '92 and Business Graphics. Anaheim, Calif., March 9-12 — Contact: National Computer Graphics Association, Fairfax, Va. (703) 698-9600.

Getting Maximum Business Value from Technology. New York, March 10-11 — Contact: The Conference Board, Inc., New York, N.Y. (212) 339-0290.

International Software Exchange '92. San Francisco, March 10-11 — Contact: Brian Eck, Juran Institute, Inc., Wilton, Conn. (203) 834-1700.

Third National Court Technology Conference. Dallas, March 11-15 — Contact: National Center for State Courts, Williamsburg, Va. (804) 253-2000.

Hannover Fair CeBIT '92. Hannover, Germany, March 11-18 — Contact: Hannover Fairs USA, Princeton, N.J. (609) 987-1202.

Directions '92: IDC's 27th Annual Computer Industry Briefing Session. Boston, March 12 — Contact: International Data Corp., Framingham, Mass. (508) 872-8200.

Fifth International Computer Virus & Security Conference. New York, March 12-13 — Contact: Data Processing Management Association, New York, N.Y. (303) 825-8124, Ext. 190.

MARCH 15-21

Guide's '92 Spring Conference. Los Angeles, March 15-20 — Contact: Guide Headquarters, Chicago, Ill. (312) 644-6610.

The Enterprise Networking Event (ENE) '92. Washington, D.C., March 17-19 — Contact: Beth Magewick, Society of Manufacturing Engineers, Dearborn, Mich. (313) 271-2861.

MARCH 22-28

Electronic Imaging. Anaheim, Calif., March 23-26 — Contact: Miller Freeman, Inc., Boston, Mass. (617) 232-3976.

DB/Expo'92. San Francisco, March 23-26 — Contact: Dan Wilson, Norm Ne Nardi Enterprises, Los Altos, Calif. (415) 941-8440.

Novell's 5th Annual Technical Development Conference. Salt Lake City, March 23-27 — Contact: Brainshare '92 Conferences & Institutes, Salt Lake City, Utah. (801) 581-5609.

Open User Recommended Solutions Conference. Salt Lake City, March 25-27 — Contact: Elaine Bond, Chase Manhattan Bank, New York, N.Y. (212) 676-2982.

GSI Transcomm Executive Symposium. La Quinta, Calif., March 25-28 — Contact: Sandy Parker, GSI Transcomm, Pittsburgh, Pa. (412) 963-6770.

GUI Design and Standard Setting Workshop. San Francisco, March 27 — Contact: Corporate Computing, Inc., Sausalito, Calif. (415) 332-1995.

MARCH 29-APRIL 4

The Seven Eastern Regional Group (SERG). Clearwater, Fla., March 29-April 1 — Contact: Diedrich E. Towne Jr., Syracuse, N.Y. (315) 428-6080.

International Symposium on Parallel Processing. Beverly Hills, Calif., March 30-April 2 — Contact: Larry Canter, Computer Systems Approach, Inc., Fullerton, Calif. (714) 738-3414.

Landmark Networking Conference. New York, March 31-April 2 — Contact: Frank Tolly, Virtual Systems, Sea Girt, N.J. (908) 449-7999.

International Conference on Multichip Modules. Denver, April 1-3 — Contact: International Society for Hybrid Microelectronics, Reston, Va. (703) 471-0066.

APRIL 5-11

Servicetrends Executive Ninth Annual Conference. Boston, April 5-7 — Contact: Datapoint/Ledgeway, Framingham, Mass. (508) 370-6262.

The Information User Association. Dallas, April 5-9 — Contact: Greg Dummer, IUA, Chicago, Ill. (312) 644-6610.

Virtual Reality Best '92. New York, April 6-8 — Contact: Marilyn Reed, Meckler Conference Management, Westport, Conn. (203) 226-6967.

Defense System Software Seminar. Boston, April 7-9 — Contact: David Maibor Associates, Inc., Needham Heights, Mass. (617) 449-6554.

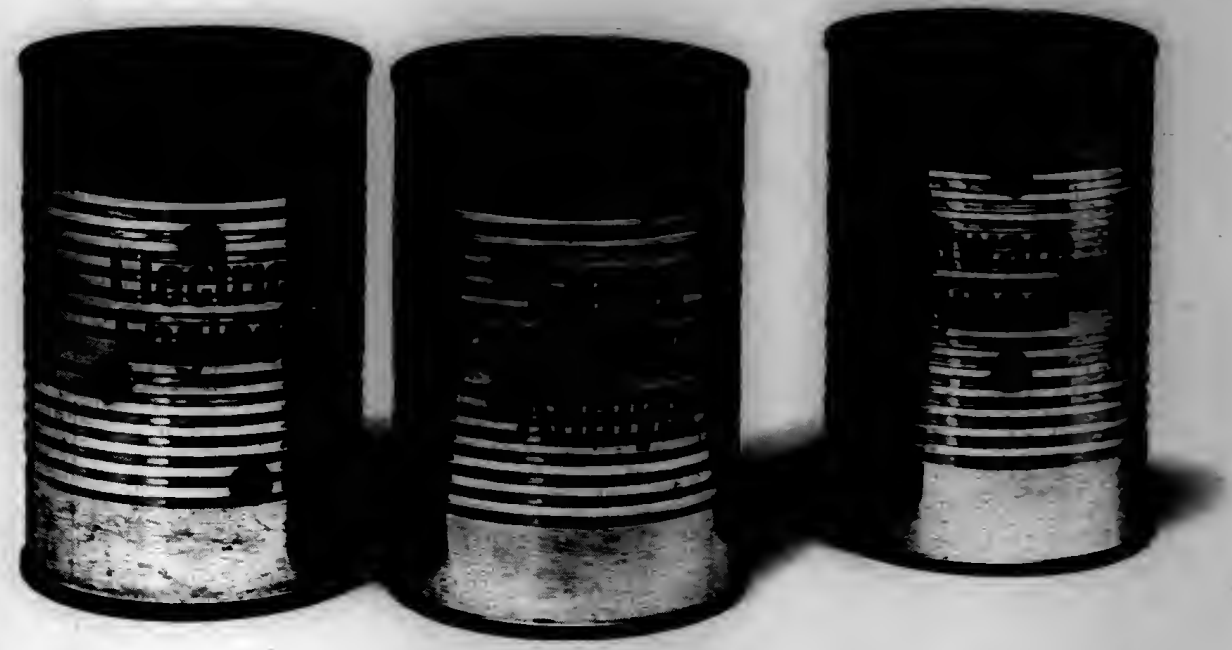
Supercomputer Conference. Newport, R.I., April 7-9 — Contact: Dr. John Miguel, Federal Information Processing Council, Middletown, R.I. (401) 841-4591.

APRIL 12-18

The Borland International Developers Conference. Monterey, Calif., April 12-15 — Contact: Borland International Developers Conference, CT Meeting Planners, Inc., Monroe, Conn. (203) 261-6227.

United States Society of Wang Users (USSWU). Washington, D.C., April 14 — Contact: USSWU Office, Chicago, Ill. (708) 652-3888.

CIME/Design. Detroit, April 14-16 — Contact: Joe Baxter, CIME/Design, Chadds Ford, Pa. (215) 444-9690.



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Conference Highlights The full schedule of seminars and workshops will include: Professional Skill Building, Managing the Recruiting Process, New Implications Created by the ADA, College Relations in Technical Recruiting, Technical Recruiting with Co-op Networks, International Technical Recruitment and Immigration, Roundtables and Receptions.

Location The Conference will be held at the INFOMART, near downtown Dallas. Aim for April 5-8 and attend the Corporate Technical Recruiters Conference. **For reservations and registration information and hotel and transportation discounts, call the toll-free Conference Hotline today, 1-800-488-9204.**

Sounds like Greek (or Japanese) to me: Learning business lingo

BY JULIA KING
SPECIAL TO CW

Do conversations with systems users ever leave you frustrated and confused? Do you frequently find yourself trying to guess at the possible meanings of unfamiliar terms? If so, it's probably time for some serious language study.

Michael Simmons, group executive in charge of technology and operations at Bank of Boston in Waterbury, Conn., says information systems managers who participate in business meetings and nontechnical business decisions are like tourists traveling in a foreign country. "If you don't speak the language, you are not going to get along very well."

What follows is a starter list of some frequently used business terms that top IS executives and business school professors say IS professionals should know:

1 Discounted cash flow: The value of money over time. There are two ways of calculating this. One involves applying a rate of discount to future cash flows, and the other involves using a discount rate to calculate the present value of future cash flows. This concept is key to determining the actual cost and value of a long-term project.

2 Globalization: The expansion of markets beyond traditional domestic boundaries; the creation of a worldwide market for a company's products.

New products and services offered by a financial services company, for example, must accommodate different countries' currencies, a task that is likely to fall to the IS department.

3 Value-added: A value-added product is a noncommodity item usually bought because of its brand name.

A manufacturing company, for example, may offer battery-operated or electric versions of its name-brand screwdriver. Credit card companies may add value to their service by furnishing cardholders with an annual summary of their purchases.

In the second instance, the added value would come from the IS department, which would be responsible for developing and maintaining the program to run the annual summaries.

4 Total Quality Management: Managing projects and employees with an eye toward streamlining processes to achieve high-quality results. The ultimate goal is to achieve zero defects in products and services.

IS departments must have a clear idea of what the corporation's quality needs are in order to revamp systems that will help achieve total quality.

5 Risk evaluation: The process of determining the payoff of a proposed project relative to the risk of completing the project. Experts say this practice may be unfamiliar to IS managers, who are more accustomed to answering the question of *how* a project should be done rather than *whether* it should be done.

6 Keiretsu: The Japanese industrial groups or families of companies formed around long-term relationships between manufacturers and suppliers. Historically, Western businesses have had looser ties and have selected suppliers on the basis of price competition. Increasingly, however, U.S. businesses are adopting the Japanese approach to buying, especially with the coming-of-age of electronic data interchange networks and data formats. At most companies, these networks and the applications that run over them are the responsibility of IS.

7 Business re-engineering: Tearing things down and creating new systems that work better instead of revamping or improving existing systems. Also known as business process redesign, re-engineering generally entails making radical changes to bring about a dramatic rise in overall performance.

For example, New York-based Citibank NA re-engineered a credit analysis system, a process that involved reducing the number of steps in the loan approval process and shifting responsibility for some of those steps. It also increased the time its employees spent recruiting new business — rather than completing paperwork from previous transactions — from 9% to 43%.

8 Strategic alliance: Two or more companies joining forces to pursue market opportunities that neither company on its own has the resources or skills to exploit. An example of a strategic alliance might be an airline that teams up with a car rental company to offer discounts to customers who use both companies' services. Using database and other technologies that help identify common customers, IS departments can play a key role in selecting potential business partners for their companies.

> "IF YOU DON'T speak the language, you are not going to get along."
>
> MICHAEL SIMMONS
> BANK OF BOSTON

9 Disintermediation: The removal or rearrangement of those departments, employees or bureaucratic steps that stand between customers and the products or services they want. "The idea behind disintermediation is to have a customer deal directly with the source," says Peter DiGiammarino, vice president at American Management Systems, Inc. in Arlington, Va.

Typical examples of where disintermediation could be helpful are branch banks and satellite insurance offices, which must call their headquarters for information, records or approvals to satisfy customer requests. IS departments might participate in the disintermediation process by creating central databases that are accessible by all locations.

10 Mass-customization: The process of making customized products available to a wide range of consumers.

Men's departments at JC Penney Co. stores, for example, offer customers one-of-a-kind suits by measuring each customer, giving him a choice of 40 fabrics and delivering his suit a week later. Another example would be IS departments in the financial services industry that could help mass-customize products by adding or deleting certain information from annual summary reports, depending on a customer's tax status.

IS managers as well as their staffs — especially programmers, systems analysts and project managers who have come up through the technical ranks — must fully comprehend the meaning of business terms that they have heard and perhaps superficially understand but never really needed to apply before.

"The real winners of tomorrow — the people who have successful careers and go on to senior positions in information management — are those with a blend of business and technical knowledge," says Patricia Wallington, corporate vice president and chief information officer at Xerox Corp.'s U.S. Marketing Group. "What that means to say is that technical knowledge is necessary, but it is not sufficient."

King is a free-lance technology writer based in Ridley Park, Pa.

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MANAGING YOUR CAREER

Nancy Thompson

Balance IS know-how with professional polish

Technical expertise isn't really enough anymore. These days, horizons for information systems professionals are broader, and so are employer expectations. Working closely with professionals in a variety of departments — often with little supervision, getting involved in process redesign efforts and supporting critical business initiatives, IS staffers need a well-developed set of personal and professional skills to complement their technical know-how.

▶**Self-motivation.** If you don't manage your career, then time, chance and other people will. So commit yourself to identifying, learning and practicing skills such as positive thinking, stress reduction and an "I know I can" attitude.

How to acquire it: Take a seminar, listen to tapes, read books and articles.

Watch how other people do and don't take responsibility, and notice the results. Start each day with some type of motivational activity, such as positive reinforcements or vocalization, and tell yourself that you will be a success.

▶**Organization.** Organize your priorities, time, space, computer, resources, ideas and the work itself. No matter how brilliant you are, looking disorganized always works against you.

How to acquire it: Look into taking courses to determine which methods of organization fit your style and goals. For organization, examine options at office supply stores. You may find a desktop organizer for your personal computer would be useful, or perhaps a Daytimer from Time Systems, Inc. in Phoenix may better meet your needs.

▶**Time management.** Deadlines are critical in IS. Meeting deadlines is only half the battle: You also need to learn how to set them. If you feel from the outset that a deadline is unrealistic, let your manager know up front and help establish a goal-by-goal time frame.

How to acquire it: Attend a time management workshop to find out good time managers' techniques. On a project level, track your progress, plan for contingencies, show how to resolve issues and deal with impact events.

▶**Business writing skill.** A good, clear writing style is a real plus in the business world, especially as it becomes harder to find people with effective writing skills.

Good writing starts with clear thinking. So before you start typing, make sure you know what action you want the reader to take and establish a vocabulary of precise words. Make sure your sentences are complete and contain only one meaning, and construct paragraphs that support your key ideas. It's also important to that your spelling and punctuation are correct.

How to acquire it: If you need a little help, keep William Strunk Jr. and E. B. White's *Elements of Style* and Charles T. Brusaw's ***Business Writer's Handbook*** on hand. Always have your dictionary and thesaurus nearby. If you need more guidance, local community colleges and universities offer courses, seminars and workshops specifically on business writing.

▶**Public speaking ability.** In today's marketplace, it's vital to be able to make formal presentations, communicate with businesspeople all the way up to the company president and deal successfully with users. There is a variety of methods and materials for presenting information ranging from informal conversations to a PC slide show.

How to acquire it: Attend meetings of local chapters of Toastmasters, an international organization of local chapters that develop and practice public speaking skills. You could also take a course on effective communication designed to help professionals express themselves more effectively in front of groups, within groups and one-on-one. If possible, videotape your next demonstration to watch other presenters and practice.

IN TODAY'S MARKETPLACE, it's vital to be able to make formal presentations, communicate with businesspeople all the way up to the company president and deal successfully with users.

▶**Interpersonal skill/team spirit.** An employer always likes to see an employee earning the respect of his co-workers. If you can lead by example and participation, you can probably bring a team together to successfully complete any project.

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While it's vital to continually sharpen your technical skills, support your career goals by increasing your business competence. No matter what direction your career takes, business ability is essential.

Thompson is staffing specialist coordinator at Cap Gemini America in Atlanta.

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Texas: Some workable options

Region moves to diversified economy to survive recession

BY JILL VITIELLO
SPECIAL TO CW

Information systems professionals who work and live in the sprawling business centers and multiple "downtowns" of Dallas and Houston are beginning to see a glimmer in the post-1980s gloom.

That faint ray is emanating from software development companies and consulting firms that have begun hiring.

It's nothing like the old days, of course, when the oil industry was riding high. Back then, this region was notorious for luring talented IS people with offers that nearly doubled their salaries.

Chastened by the hard lesson a one-industry economy levied on it, Houston is welcoming new businesses and seeking economic diversity.

"In Houston, there's been a realignment of the economy away from energy-based companies and a movement of IS professionals out of oil and gas and into software development houses or government contracting, particularly for NASA," says Dick Hudson, vice president of MIS at Global Marine, Inc. in Houston.

The same movement into software development and government contracting has been noted in Dallas, where it was the financial sector that suffered the most severely. IS professionals are also now finding employment opportunities at service and manufacturing corporations.

Dallas has been helped by Texas Instruments, Inc.'a introduction of a new product, Information Engineering Facility (IEF). The firm hired approximately 200 IS professionals in 1991, and this year, it plans to add nearly as many in the Information Technology Group, which sells and services IEF.

TI wants IS professionals who are experienced in computer-aided software engineering (CASE) tools for business applications to develop, consult, sell and service the booming IEF line, said Anita Hawiszczak, manager of staffing at the division.

While consulting firms aren't recruiting at the same pace, they are in the market for professionals with skills in the new technologies such as Unix, open systems, CASE tools, personal computer local-area networks and telecommunications. Working for a consulting or contracting firm "used to be a place of last resort for people who lost their jobs," says Richard Bell, chairman of the Southwest High Tech Cooperative, a consortium of corporate technical recruiters with members in Dallas and Houston. "Now these positions are considered cutting edge."

Sign of the times

The change in attitude is a sign of the times. As companies begin remaking themselves to compete more efficiently, they are frequently turning to consulting firms to build or help them migrate to new systems as well as to train employees on how to use and maintain them.

In some of the organizations that are not adding staff, retraining programs are under way. Keeping and gaining skills is an overriding concern in Dallas and Houston, where IS survivors have seen all too clearly that the obsolete are winnowed out of serious job competition.

When Campbell Taggart, Inc., the nation's second-largest baker, installed a new networking system, employees were not only trained to use the new equipment but were also sent to a course on using interpersonal skills in a business environment, says Charles Haywood, vice president of MIS at the Dallas-based company.

"Basically there are three kinds of people in IS right now: the unemployed, the underemployed and those afraid of being either of the two," says Phil Scott, a partner in the IS consulting practice at Ernst & Young in Dallas.

Vitiello is a speech writer and free-lance writer based in East Brunswick, N.J.

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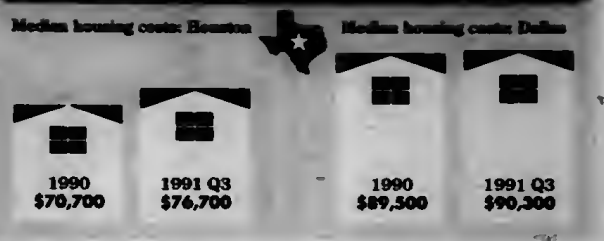

Source: National Association of Realtors

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- Continental Airlines Holdings, Inc.
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- American General Corp.
- Houston Industries, Inc.
- Compaq Computer Corp.

Source: Houston Business Journal

Largest Dallas employers
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- Texas Instruments, Inc.
- AMR Corp.
- Dallas Independent School District
- U.S. Postal Service
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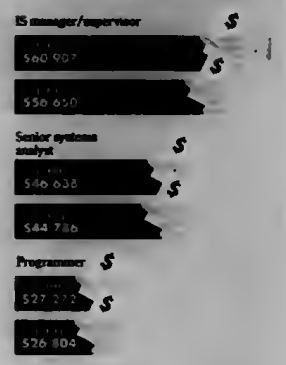
Source: Dallas Convention and Visitors Bureau

Sources: Greater Houston Partnership; Dallas Convention and Visitors Bureau



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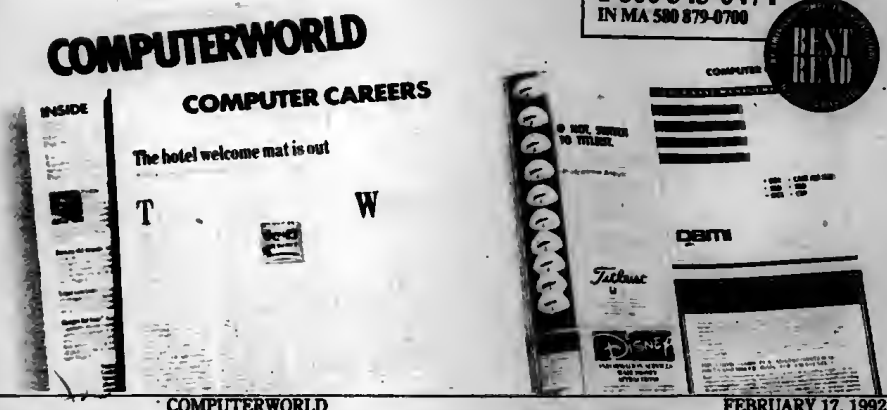

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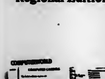

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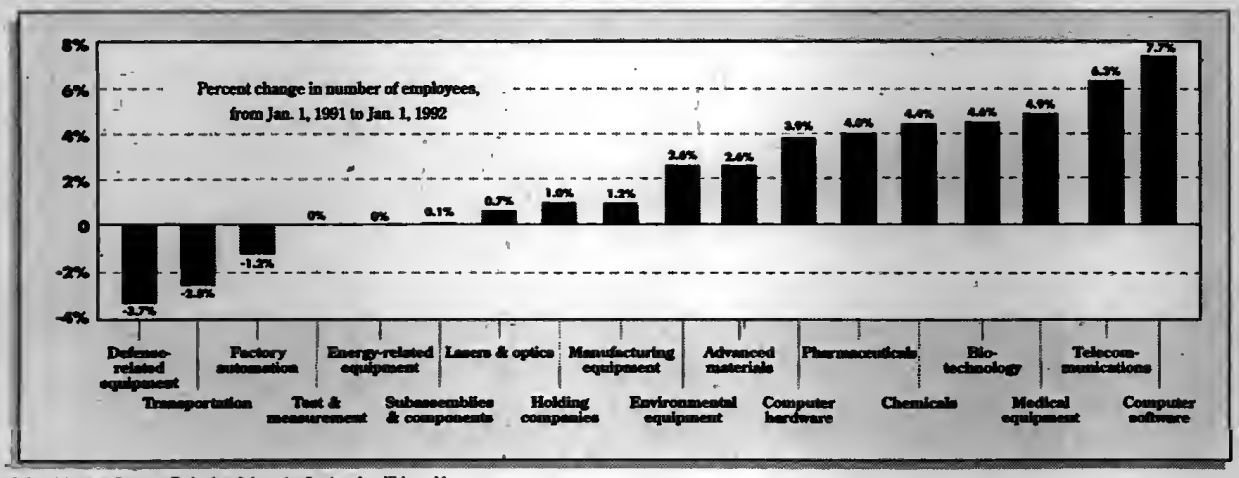

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PC GIS: Expect gain but also some pain

BY ALAN RADDING
SPECIAL TO CW

A&P Canada Ltd., a supermarket chain in Toronto, used to rely on a manual "pins-in-a-map" system to keep track of customer market studies. However, with Spans, a geographic information system (GIS) from Arlington, Va.-based Tydac Technologies Corp. that costs about $6,000, what used to take weeks is now done in hours — with more detail to product research.

Corporations such as A&P are realizing the benefits of GIS programs and are looking toward personal computer-based offerings such as Spans to help simplify the arduous task of plotting demographic information.

These programs combine maps with demographics, allowing data to be analyzed in spatial form rather than in a table. Users can manipulate the data much like a spreadsheet, change boundary lines between sales territories and see how the revenue potential changes for each sales representative.

Only recently have GIS vendors targeted the corporate market, which traditionally focused only on large-scale, big system users such as the government, utilities, transportation industries and natural resources companies. But as the availability of new PC-based programs increases, so does their popularity, thanks to lower costs and ease of implementation, which for large systems requires an experienced consultant to set up.

What businesses look for today in a PC GIS is ease of use, ability to import data in a variety of formats and the availability of data and applications.

"We went with the PC-based system because my program managers can use it themselves," says Chris Difani, division chief at the California Department of Forestry and Fire Protection in Sacramento.

Scott Matthews

Radding is a free-lance writer in Newton, Mass.

Particularly easy to use are systems based on Microsoft Corp.'s Windows, such as Mapinfo from Mapinfo Corp. in Troy, N.Y., and Windows on the World from Geovision, Inc. in Norcross, Ga.

One enterprise familiar with Windows products is the Coatings and Resins Group at PPG Industries, Inc. in Pittsburgh, which turned to Mapinfo for a sales prospecting application "because we were already using Windows and were familiar with the environment," says Stan Solak, a senior business analyst.

However, before a GIS becomes worthwhile to an organization's business, the company must be able to put corporate data into the GIS program. For this to happen, the GIS system must be compatible with the company's database. Luckily, most GIS systems import and export data in ASCII format, but even if they don't, there are a number of other formats available, including Borland International, Inc.'s Dbase, Fox Software, Inc.'s Foxbase, Lotus Development Corp.'s 1-2-3 and Microsoft's Excel spreadsheet formats, as well as relational databases such as Oracle Corp.'s Oracle, Sybase, Inc.'s Sybase and Ingres from The Ask Cos.

Next to ease of use, cost clearly makes PC-based GIS programs more attractive than their large-system counterparts. Larger GIS programs start at $25,000 and can cost in the millions of dollars, whereas a simple automated mapping system can be purchased for several hundred dollars. Even the top PC-based GIS sells for only about $10,000.

Users lured by the lower cost include Difani and his staff, who opted for San Jose, Calif.-based Strategic Mapping, Inc.'s PC-based Atlas, a $2,500 system, to plot potential fire areas throughout the state. Solak purchased the $995 Mapinfo product for $695 during a promotion.

These PC-based systems generally do not have the processing capability of the large-platform products, limited by the power of the underlying database and their analytical capabilities. But they do meet the requirements for mapping and data overlay of many applications.

For now, a PC GIS typically comes as a shell program. Users have to add their own applications and data. Atlas GIS and Mapinfo have taken the lead in providing data and commercial applications.

Once a system is acquired, users should be prepared to climb a steep learning curve. Training programs introducing a user to the basics of GIS are available from vendors, but users report expending several months of effort before they feel productive with the systems.

Filling in the data

Consultants estimate that 60% to 80% of the full cost of implementation comes from acquiring data or preparing existing data for use in the GIS.

If an organization already uses paper-based maps, scanning those maps into the system and vectorizing them to add intelligence is a slow process.

The U.S. Census Bureau offers Topologically Integrated Geographic Encoding and Referencing (TIGER) files, digitized maps of the entire country, at a reasonable cost; however, these maps are often not detailed or accurate enough for many applications. A number of independent companies, such as Geographic Data Technology, Inc. in Lyme, N.H., sell enhanced versions of the TIGER maps, which have been made more accurate by having inconsistent street addresses and wrong block numbers cleaned up.

Also, some GIS vendors and many market research firms sell prospect, demographic and other types of data that may be used, depending on the application.

Another cost factor is that of geocoding. Whether a user purchases outside data or uses internal databases, such as customer files, the data must be "cleaned" for use by the GIS.

"Dirty" data is data that is simply inaccurate or, at the least, lacks a standard address scheme. Street, city, county and state names may be spelled incorrectly or abbreviated differently from the style a user follows. Errors are often found in ZIP codes or street numbers. Automated tools can correct much of this, but a substantial portion still must be handled manually.

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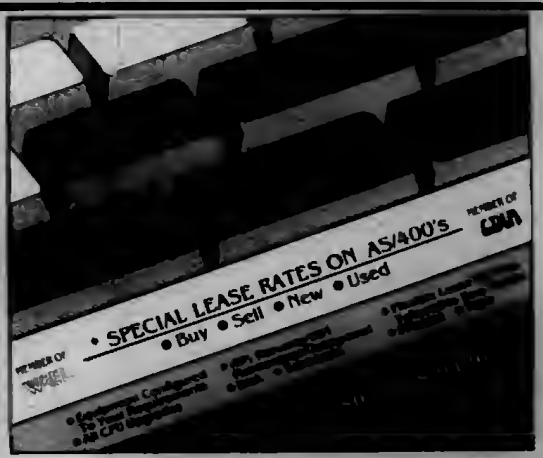

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Deskpro 286E	$800	$1,000	$800
Deskpro 386/20	$2,000	$2,200	$1,900
Apple Macintosh Plus	$700	$750	$650
SE	$950	$1,050	$950
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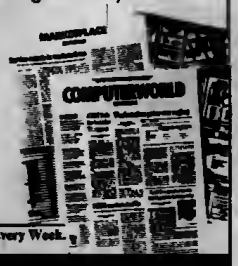

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Bids/Proposals/Real Estate

REQUEST FOR PROPOSAL

Kitsap County is requesting proposals for the furnishing of a Payroll/Personnel System. Sealed proposals will be received until 12:00 noon on Friday, April 3, 1992.

Requests for Proposal will be available beginning February 28, 1992, by calling the Kitsap County Purchasing Department at (206) 876-7071.

Further details regarding the specifications can be obtained by calling Mel Williams, Kitsap County Data Processing, (206) 895-3717.

The New York City FINANCIAL INFORMATION SERVICES AGENCY has issued a Request for Proposal for the acquisition of CMF Compiler Software (proposals due March 25, 1992, 2:00 p.m.).

Requests for Proposal may be obtained by calling Kathy Klem at (212) 208-3043.

Further details regarding the specifications may be found within the RFP. The Pre-Proposal Conference will be held on March 4, 1992 at 11:00 A.M.

MS CENTRAL DATA PROCESSING AUTHORITY

Sealed proposals will be received by CDPA, 301 N. Lamar St., 301 Bldg., Suite 503, Jackson, MS 39201 for the following:

RFP No. 2100, due Wed, 3/18/92, at 3:30 p.m. for hardware and software needed for the upgrade of an existing IBM AS/400 Model B45 for MISSISSIPPI STATE UNIVERSITY.

RFP No. 2101, due Wed, 3/11/92, at 3:30 p.m. for forty microcomputers, twenty-three printers, and related peripherals for HINDS COMMUNITY COLLEGE - Raymond Campus.

RFP No. 2102, due Wed, 3/11/92, at 3:30 p.m. for a thirteen station Remedial Job Skills lab for SOUTHWEST COMMUNITY COLLEGE.

RFP No. 2103, due Wed, 3/11/92, at 3:30 p.m. for a twenty station Remedial Adult Skills LAN for HINDS COMMUNITY COLLEGE - Jackson Campus.

RFP No. 2104, due Wed, 3/11/92, at 3:30 p.m. for twenty microcomputers and various peripherals and software for JONES COUNTY JUNIOR COLLEGE.

RFP No. 2105, due Wed, 3/11/92, at 3:30 p.m. for a forty workstation local area network and various software for PEARL RIVER JUNIOR COLLEGE.

RFP No. 2106, due Wed, 3/11/92, at 3:30 p.m. for ten microcomputer based CAD workstations and various peripherals and software for PEARL RIVER COMMUNITY COLLEGE.

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SECTOR FOCUS: PERSONAL COMPUTERS

Andrew Neff
Bear, Stearns & Co.
Feb. 7, 1992

Based on early returns from a Bear, Stearns survey conducted in January, unit demand for personal computers is climbing.

However, factors for success have changed. In the 1980s, scarcity of 32-bit microprocessors meant that a close relationship with **Intel Corp.** (INTC) was key to prosperity. However, chips from **Advanced Micro Devices, Inc.** (AMD) led to the growth of firms that had developed alternate distribution channels, such as **AST Research, Inc.** (ASTA) and **Dell Computer Corp.** (DELL).

And the model is changing again. The PC is a commodity with certain price points. Key differentiating factors are service, support, packaging and cheap distribution.

Apple Computer, Inc. (AAPL), which started the $1,000 price point, reported an excellent first quarter for fiscal 1992 — better than Wall Street estimates. However, this stock is a hold, given that sales have peaked for the year and unit growth is slowing.

An analyst meeting with **Compaq Computer Corp.** (CPQ) gave the impression that the company's turnaround effort could take longer than expected because of the competitive environment and level of change required. Some necessary steps, including low-end products, could be delayed. Plus, Compaq will have to spend a lot of cash as the product mix shifts to lower margin goods.

Intel is riding on momentum from its new 1486 processors. Reduced dependence on the 80386 line puts Intel in good shape relative to rival AMD.

RECOMMENDATION CHANGES

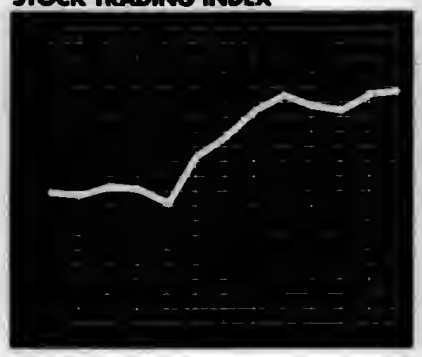
UPGRADED FROM HOLD TO BUY: **Mentor Graphics, Inc.** (Prudential Securities, Inc.). Economic and product transition problems caused uncertainty for Mentor (MENT) in recent months, but the firm has turned the corner. Share price could grow by 25% in the next 12 months. After years of delay, Mentor is shipping Version 8.0 of its flagship graphics package for machines from **Sun Microsystems, Inc.** (SUNW) and **Hewlett-Packard Co.** (HWP). Mentor said it will port to workstations from **Digital Equipment Corp.** (DEC) and **IBM** (IBM) by year's end.

UPGRADED FROM NEUTRAL TO OUTPERFORM: **Adaptec, Inc.** (Shearson Lehman Brothers, Inc.). Sales of the company's small computer systems interface adapter boards have increased sharply recently. Adaptec (ADPT) announced it will ship laser printer controllers to a major printer maker starting in the current quarter, which is expected to bring in an additional $3 million in revenue for fiscal year 1992.

UPGRADED FROM MARKET PERFORMER TO OUTPERFORM: **Micrografx, Inc.** (Montgomery Securities). The company showed strong sales gains in the quarter just reported, driven by the successful launch of Windows Draw, a low-end drawing program for **Microsoft Corp.** (MSFT) Windows. Micrografx (MGXI) management has regained control of expenses following a disappointing quarter last summer. In March, Micrografx is slated to ship its first upgrade to Picture Publisher since it acquired the product in 1990.

KIM S. NASH

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

- Among big gainers, Digital Equipment Corp. climbed 8¾ points to close Thursday at 61¼. DEC and Microsoft Corp. announced an agreement to provide better interoperability between their products, based on Microsoft's Windows New Technology operating system. Microsoft sank 3¾ points to 122½.
- Unisys Corp. completed its sixth consecutive week of gains last week, adding 1¾ points to 9½. Unisys has soared 4⅝ points — nearly doubling — since the beginning of the year.
- Other gainers included Informix Corp., which advanced 4¾ points to 32½ after reporting better than anticipated financials for its fiscal fourth quarter.
- Among the week's losers was Borland International, Inc., which fell 4½ points to close Thursday at 75¼. Electronic Data Systems Corp. (General Motors Corp. Class E) plummetted 5¾ to 56½, while Computer Associates International, Inc. slipped ¼ of a point to 15¾.

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, FEBRUARY 14, 1992

TOP PERCENT GAINERS

Televideo Systems	66.67
Unisys Corp.	32.31
Dataram Corp.	31.37
Wang Labs Inc. (b)	30.00
Watsco	15.22

TOP PERCENT LOSERS

Computer Automation Inc.	-30.00
Alcorp	-14.29
Computer Horizons	-9.80
Ariel Communication Corp.	-6.66
Picturetel Corp.	-6.50

TOP DOLLAR GAINERS

Dataram Corp.	8.00
Digital Equipment Corp.	8.25
Texas Instruments	3.25
Silicon Graphics	3.15
Tandy Corp.	3.13

TOP DOLLAR LOSERS

Matsushita Electronics	-9.25
Microsoft Corp.	-7.25
General Motors E (EDS)	-5.13
Adobe Systems Inc.	-4.75
Picturetel Corp.	-4.25

Communications and Network Services — Off 0.13

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
OTC	15.00	6.75	3COM Corp.		14.50	0.38	2.65
NYS	69.00	63.75	American Info Techs Corp		62.25	2.00	3.32
NYS	41.38	32.63	AT&T		38.63	1.63	4.41
OTC	4.25	1.25	Ariel Communication Corp.		3.50	-0.38	-6.66
NYS	52.75	43.00	Bell Atlantic Corp.		44.63	0.00	0.00
NYS	54.25	45.38	Bellsouth Corp.		48.25	1.00	2.12
NYS	65.00	30.25	Cabletron Systems		64.63	1.38	2.17
OTC	35.25	13.75	Compression Labs Inc.		25.38	-1.88	-6.88
OTC	9.13	1.50	Data Switch Corp.		2.63	-0.19	-6.66
NYS	23.63	12.38	Digital Comm. Assoc.		21.88	-0.38	-1.69
OTC	25.25	14.00	Dynatech Corp.		21.00	-0.63	-2.33
OTC	12.38	5.00	Fibronics Int'l Inc.		8.50	0.00	0.00
OTC	29.75	10.63	FlyNet Corp.		29.50	0.00	0.00
OTC	3.75	1.13	Gandalf Technologies Inc.		2.25	-0.13	-5.38
NYS	4.00	2.15	General Datacomm Inds		4.00	0.13	3.23
NYS	35.00	28.13	GTE Corp		31.00	0.00	0.00
NYS	63.00	63.00	ITT Corp.		63.00	1.25	2.13
OTC	35.00	24.63	MCI Communications Corp.		33.63	0.75	2.28
OTC	14.63	5.00	Microcom Inc.		13.00	1.50	13.04
NYS	18.25	5.63	Network Equipment Tech.		10.50	-0.63	-3.96
OTC	25.50	6.75	Network General		24.25	-0.63	-2.00
OTC	20.00	10.63	Network Systems Corp		18.25	1.25	8.33
NYS	49.13	26.63	Northern Telecom Ltd		49.75	2.25	4.84
OTC	65.00	22.50	Novell Inc.		59.88	-0.63	-1.03
NYS	82.38	66.00	Nynex Corp.		75.00	0.75	1.01
NYS	45.00	38.50	Pacific Telesis Group		41.00	-0.13	-0.30
OTC	11.63	5.63	Penril Data Comm. Ntwks.		8.88	-0.25	-2.74
OTC	51.50	18.75	Picturetel Corp.		45.75	-4.25	-8.50
NYS	18.75	11.63	Scientific Atlanta Inc.		19.13	-0.63	-3.33
NYS	68.00	49.00	Southwestern Bell Corp.		63.13	1.38	2.24
NYS	31.63	21.25	United Telecom		22.25	-0.25	-1.11
NYS	40.75	33.75	US West Inc.		35.13	-0.13	-0.35

Computer Systems — Up 2.16

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
OTC	63.75	6.75	Advanced Logic Research		8.00	0.00	0.00
ASE	19.88	11.63	Amdahl Corp.		18.00	-0.25	-1.63
OTC	73.25	40.25	Apple Computer Inc.		64.13	0.13	0.20
OTC	9.13	2.75	Archive Corp.		5.50	-0.13	-2.22
OTC	32.75	14.63	AST Research Inc.		20.50	0.00	0.00
NYS	9.38	4.75	Bolt, Beranek & Newman		5.63	0.13	2.27
NYS	21.63	10.13	Commodore Int'l		14.88	-0.13	-0.83
NYS	74.25	22.15	Compaq Computer Corp.		31.63	1.63	4.90
OTC	2.63	0.88	Computer Automation Inc.		0.88	-0.38	-30.00
NYS	13.38	7.63	Control Data Corp.		11.63	-0.25	-2.13
NYS	19.75	8.88	Convex Computer		15.13	-1.00	-6.20
NYS	52.25	31.50	Cray Research Inc.		44.88	2.75	6.53
NYS	22.50	6.63	Data General Corp.		11.25	-0.50	-4.38
NYS	4.38	1.00	Datapoint Corp.		3.13	0.13	4.17
OTC	38.25	20.25	Dell Computer Corp.		32.38	0.25	0.75
NYS	83.00	48.50	Digital Equipment Corp.		36.63	6.25	11.71
NYS	63.75	21.25	Harris Corp.		35.63	1.00	3.51
NYS	63.63	40.13	Hewlett Packard Co.		63.63	1.13	1.80
NYS	139.75	63.50	IBM		89.73	0.63	0.70
OTC	12.00	8.50	Information Int'l		9.50	0.25	2.70
NYS	145.75	105.00	Matsushita Electronics		108.25	-8.25	-7.06
OTC	20.88	7.88	MiPS Computer Systems		11.13	-0.38	-3.26
OTC	29.63	10.75	Pyramid Technology		18.00	-1.00	-5.00
OTC	18.75	7.50	Sequent Computer Sys.		17.63	0.50	2.92
NYS	55.63	26.63	Silicon Graphics		55.63	3.13	5.97
NYS	51.88	27.25	Stratus Computer Inc.		51.88	2.25	4.53
OTC	38.63	20.75	Sun Microsystems Inc.		32.38	-0.75	-2.26
NYS	17.63	8.50	Tandem Computers Inc.		14.50	1.13	8.41
OTC	4.75	1.25	Tandon Corp.		1.94	-0.06	-3.10
NYS	38.63	23.38	Tandy Corp.		50.00	3.13	11.63
OTC	32.38	12.50	Teradata		30.63	0.63	2.08
NYS	6.13	1.13	Ultimate Corp.		2.75	0.13	4.75
NYS	10.75	3.25	Unisys Corp.		10.75	2.63	32.31
ASE	5.75	2.00	Wang Labs Inc. (b)		4.88	1.13	30.00

Software & DP Services — Off 0.12

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
OTC	66.50	41.25	Adobe Systems Inc.		58.00	-4.75	-7.57
OTC	13.25	3.50	Alcorp		10.50	-1.75	-14.29
OTC	59.88	28.75	Altsys Corp.		32.75	-1.00	-2.96
OTC	38.63	19.25	American Mgmt. Systems		23.75	0.50	2.15
OTC	18.75	10.13	American Software Inc.		18.75	1.29	7.14
NYS	9.38	2.50	Anacomp Inc.		4.63	-0.13	-2.63
OTC	18.25	12.00	Analysis Int'l		17.25	0.25	1.47
OTC	20.00	9.25	ASK Computer Sys		17.50	-1.38	-7.28
NYS	49.00	29.63	Auto Data Processing		45.13	-0.75	-1.63
OTC	82.25	24.25	Autodesk Inc		24.75	-1.38	-5.26
OTC	42.63	25.88	BGS Systems Inc		41.00	-1.50	-3.53
OTC	73.00	33.00	BMC Software Inc.		68.50	0.25	0.37
OTC	18.25	9.75	Boole & Babbage Inc.		17.88	1.15	6.72
OTC	88.75	68.50	Borland Int'l		73.00	-4.63	-5.19
OTC	63.88	7.50	Cognos Inc.		11.50	1.50	15.00
NYS	18.63	7.25	Computer Associates		13.50	-0.38	-2.56
OTC	18.25	7.75	Computer Horizons		11.50	-1.25	-9.63
NYS	62.75	52.25	Computer Sciences		63.25	0.50	0.63
NYS	11.25	7.00	Computer Task Group		8.63	-0.13	-1.43
OTC	22.75	12.00	Cortshare Inc.		18.00	0.00	0.00
OTC	17.75	7.75	Corporate Software		17.75	0.75	4.41
NYS	65.13	39.25	General Motors E (EDS)		56.00	-5.13	-8.38
OTC	16.75	9.25	Goal Systems Int'l		13.00	0.00	0.00
OTC	7.00	3.38	Hogan Systems Inc.		8.75	-0.13	-2.13
OTC	36.50	14.88	Information Resources		35.63	2.75	8.40
OTC	50.50	4.38	Informix Corp.		63.50	2.75	9.91
OTC	3.63	1.00	Intelligent Inc.		2.13	0.00	0.00
OTC	31.50	16.25	Intergraph		18.50	0.25	1.30
OTC	14.63	4.88	Interleaf Inc.		14.63	1.50	11.43
OTC	20.25	7.38	Intersolv		18.25	-0.75	-3.95
OTC	43.25	10.50	Knowledgeware Inc.		20.00	-0.25	-1.23
OTC	45.00	20.25	Legent Corp.		42.25	0.00	0.00
OTC	40.75	19.00	Lotus Development		32.63	-0.25	-0.75
OTC	21.25	11.50	Mentor Graphics		20.00	0.13	0.63
OTC	31.50	9.75	Micrografx		29.00	0.50	1.75
OTC	135.25	63.50	Microsoft Corp.		118.63	-7.25	-5.77
OTC	20.63	7.00	Oracle Systems		20.25	0.63	3.18
OTC	10.00	4.88	Phoenix Technologies		8.75	0.00	0.00
OTC	25.25	9.00	Platinum Technology		21.00	-1.00	-4.58
NYS	72.75	43.25	Policy Management Sys.		70.75	0.25	0.35
NYS	40.88	16.75	Reynolds & Reynolds		40.63	0.75	1.88
OTC	16.75	9.75	Ross Systems		14.00	-0.75	-5.06
OTC	31.50	21.25	SEI Corp		31.25	0.75	2.48
OTC	24.38	19.75	Shared Medical Systems		22.38	-0.25	-1.10
OTC	35.25	12.50	Software Publishing Corp.		22.88	-0.75	-3.17
OTC	25.25	10.38	Sterling Software		23.00	-0.50	-2.13
OTC	23.50	11.75	Sungard Data Sys.		33.63	1.75	5.06
OTC	51.00	18.50	Symantec Corp.		44.25	-2.00	-4.32
NYS	19.50	5.88	System Center Inc.		12.13	0.50	4.63
OTC	26.25	8.34	System Software Assoc.		28.25	2.25	8.89

Semiconductors — Up 6.35

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
NYS	21.88	7.25	Advanced Micro Devices		18.38	-0.88	-4.32
NYS	12.50	7.63	Analog Devices Inc.		8.63	0.13	1.53
OTC	13.50	7.00	Chips & Technologies		12.88	1.50	13.19
OTC	67.13	38.50	Intel Corp		67.15	2.63	4.07
NYS	12.50	8.50	LSI Logic Corp.		9.25	0.25	2.75
NYS	21.38	10.88	Micron Technology		21.38	2.15	11.04
NYS	81.00	56.00	Motorola Inc.		81.00	0.00	1.08
NYS	10.13	3.88	National Semiconductor		10.13	0.63	6.58
NYS	47.63	26.00	Texas Instruments		37.75	5.25	9.42
OTC	12.25	5.88	VLSI Technology		8.88	0.88	9.72
OTC	16.75	4.50	Wafertek		9.63	0.88	15.22
ASE	6.25	2.00	Western Digital Corp.		4.38	0.25	6.06

Peripherals & Subsystems — Up 5.23

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
OTC	2.75	1.06	Apertus Technologies		1.25	0.00	0.00
OTC	20.50	9.50	Banctec Inc.		20.00	1.00	5.26
OTC	46.00	9.75	Cambex Corp.		45.00	0.00	0.00
ASE	11.75	7.00	Cognitronics Corp.		9.38	-0.38	-3.85
OTC	29.00	12.63	Conner Peripherals		63.13	0.38	1.90
ASE	33.50	8.63	Dataram Corp.		32.50	8.00	21.37
OTC	18.88	4.88	EMC Corp.		15.50	-0.38	-2.38
NYS	50.75	38.63	Eastman Kodak Co		48.75	-0.13	-0.27
OTC	11.25	4.75	Emulex Corp.		8.00	-0.38	-4.88
OTC	34.00	14.75	Evans & Sutherland		18.75	-0.50	-2.47
OTC	11.25	4.00	Iomega Corp		11.00	0.75	7.32
OTC	31.25	14.50	IPL Systems Inc.		31.25	1.25	4.17
OTC	9.50	1.63	Maxtor Corp.		9.84	0.19	2.19
OTC	18.00	5.50	Micropolis Corp.		11.00	0.75	7.32
NYS	98.75	83.63	3M Corp.		92.25	1.25	1.37
OTC	10.75	3.63	Printronix Inc.		4.75	0.00	0.00
NYS	26.75	11.25	QMS Inc.		14.88	0.50	3.48
OTC	18.25	9.00	Quantum Corp.		17.00	0.75	4.62
NYS	11.13	5.38	Recognition Equipment		11.13	1.00	9.88
OTC	11.63	5.38	Reson Inc.		10.75	0.38	3.81
OTC	19.88	7.13	Seagate Technology		14.38	0.50	3.60
OTC	75.00	26.25	Storage Technology		73.63	-1.50	-2.00
NYS	30.88	16.63	Tektronix Inc.		19.88	0.38	1.92
OTC	0.63	0.19	Televideo Systems		0.63	0.25	66.67
NYS	82.25	61.50	Xerox Corp.		79.25	-1.50	-1.86

Leasing Companies — Up 3.37

Exch	52-Week		Range		Feb 14 Close	Wk Net Change	Wk Pct Change
OTC	16.25	10.00	Amphicon Inc.		13.75	0.88	6.83
NYS	60.38	18.13	Comdisco Inc.		19.75	-0.75	-3.66
OTC	16.25	11.25	LDI Corporation		14.75	-0.13	-0.84

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IN BRIEF

Consulting at Amdahl

■ **Amdahl Corp.** segued into the services sector last week with the debut of two open systems consulting services: the systems implementation service and the performance tuning service.

■ With one **Malcolm Baldrige National Quality Award** under its belt and a high-profile resolve that it will not be the last, **IBM** has borrowed from the Baldrige criteria by selecting six of its 4,000 business partners as recipients of the first annual IBM Mark of Quality awards. The award salutes members of the IBM alliance program that have "adopted the best quality processes" in the award year.

■ **Electronic Data Systems Corp.** is about to finalize an agreement with **Japan Systems K.K.** that will give the **General Motors Corp.** outsourcing and services division a 20% stake in the 22-year-old Japanese computer products and services company. The pact will give EDS a base from which to leverage itself into the Japanese information technology market.

NCR names EDS to integration team

BY ELLIS BOOKER
CW STAFF

DAYTON, Ohio — NCR Corp. last week significantly increased the strength of its aystems integration alliance program, naming Electronic Data Systems Corp. one of its chief partners.

EDS, by far the largest integrator to sign up with NCR to date, joins more than 10 integrators that NCR has tapped for specific projects, such as Bell Information Systems in Cincinnati and Pacific Access Computers, Inc. in Sacramento, Calif., according to Mike Ruffolo, director of the NCR program.

In 1992, he said, NCR expects to do 80% to 90% of its business with eight integrators, many of whom will specialize in specific vertical markets.

"With EDS, the difference is there are so many areas of intersection that we'll have lots of very large opportunities," Ruffolo said.

The two companies have spent the last year evaluating which markets to target initially, he said, but they have yet to arrive at a decision.

The deal's value and length were not disclosed.

EDS will no doubt cast a broad net in the commercial marketplace, concentrating on "large, complex, multimillion dollar contracts," said Steve Widen, a senior analyst at Workgroup Technologies, Inc. in Hampton, N.H.

"It bodes well for NCR. They won't need to worry about the systems integration requirements of big deals," he explained.

According to Ruffolo, the two companies already have a number of proposals pending and hope to announce major wins shortly. He declined to comment further.

Under the agreement, EDS will be able to market NCR's complete range of open, cooperative computing solutions, including its seven-level System 3000 line of microprocessor-based systems and its enterprisewide office automation software, called Cooperation, as well as NCR products for specific industries.

Indeed, EDS' belief in NCR's computing architecture appears to run deep. Sources close to EDS indicate that the company's technology assessment organization is now testing the viability of standardizing on a broad range of NCR products.

Partnering up

NCR's other integration allies are the following:

- **Data Systems Network Corp., Farmington Hills, Mich.:** $35 million contract covering commercial contracts in North America.
- **Pacific Access Computers, Sacramento, Calif.:** $10 million deal to provide telecommunications solutions to Bell companies, Fortune 500 companies and government agencies.
- **ERI, Hauppauge, N.Y.:** $10 million pact targeting the telecommunications, financial and education industries.

Joint venture will pitch cellular systems

BY ELLIS BOOKER
CW STAFF

SCHAUMBURG, Ill. — Motorola, Inc. and telecommunications switching giant Northern Telecom, Inc. last week formed a venture focused on wireless communications.

Dubbed Motorola-Nortel Communications Co., the 900-person joint venture will sell cellular systems from both companies in the Americas and the Caribbean and will explore the development of new wireless technologies, according to executives at the two firms.

"This is basically a continuation of the worldwide trend in telecommunications to get bigger or get out," said Herschel Schosteck, president of Schosteck Associates Ltd., a telecommunications economics and market research firm in Silver Spring, Md.

The deal, Schosteck added, means that two of the cellular industry's four biggest players are now allies. The other two dominant players are AT&T and Ericsson, Inc.

Motorola-Nortel, which will be based in Chicago with a manufacturing facility in Dallas, will sell and support Northern's DMS-MTX and Motorola's EMX cellular switch lines; the company will also develop an interface to link the Northern switch and Motorola's HD-II cellular cell site. However, the company's inventory will not include the cellular telephones now sold by Motorola's cellular subscriber group.

Other industry watchers speculated last week that the pact may result in products for CT-2 wireless networks. CT-2, a technology now being explored in the UK, involves extremely lightweight, low-powered wireless handsets that allow users passing within a few hundred feet of a cell site to place calls. Both Motorola and Northern have developed products for these "telepoint" systems in the UK.

Motorola-Nortel is expected to be operational in the second quarter, with a unified product arriving in the first quarter of 1993. Financial details of the alliance were not disclosed.

$10,903,846,184

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Computerworld readers will have spent
over $10.9 Billion on
Information Technology — representing nearly half of
all spending in the last seven days.

COMPUTERWORLD

WORDS *into* TYPE

Computer jargon is moving into the dictionary. Among the 180,000 words in *Random House's New College Dictionary*: **WYSIWYG** and **GUI**. In *Merriam-Webster's Ninth New Collegiate Dictionary*: **LAN, desktop publishing, hard disk and laser printer.**

SACRE BLEU!

In 1989, 41,000 Parisians got letters accusing them of various crimes — such as murder, prostitution and drug dealing — and demanding payment of a small fine. The recipients were supposed to get letters reminding them of unpaid traffic tickets, but apparently the computer codes for traffic offenses got mixed up with the codes used for illegal activities. Officials issued 41,000 letters of apology.

OVERHEARD

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JAMES T. POLLARD,
DIRECTOR, FLORIDA
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From our reader file:

A joke going around IBM, as told to us by an IBM programmer:

Q: How much land does it take to bury IBM?

A: Akers

MISspeak

Hyperlink:
Editors on [illegible]line

Object-oriented:
Excessively materialistic

Groupware:
Vaporware for more than one person

Fuzzy logic:
What R&D thinks of most marketing strategies

A generic software review

WYSIWYG design: Janell Genovese

► Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zottola or Jodie Naze at (800) 343-6474. If we use your ideas, we'll send you a gift.

Sources: *Word Watch*, The Delahaye Group; *Computerization and Controversy*, Academic Press, Inc., 1991; *The Atlantic*, January 1992

INSIDE LINES

Et tu, PC?

► Users should expect to see an Alpha-based PC from DEC within 18 months, or at least by the summer of 1993, according to Terry Shannon, principal at Gander Resources in Ashland, Mass. Windows New Technology would be the operating system of choice for such a platform, though DEC has yet to officially endorse the still-emerging Microsoft operating system for its next-generation RISC platform. Pricing could go as low as $3,500, Shannon suspects.

LAN Server lives

► Seeking to stanch rumors that its LAN Server is destined for the scrap heap, IBM said in a Networld '92 briefing in Boston last week that it has committed 200 people to filling key gaps in the client/server system. During the next two to three years, IBM will incorporate X.500-compatible directory services, naming services and remote procedure calls based on the OSF's Distributed Computing Environment standard, executives said. The resulting application framework will support OS/2, Microsoft's DOS and Windows clients and all major IBM host systems.

Intelligent switching

► Smart-hub vendors plan to soon bring Asynchronous Transfer Mode (ATM) switching to local-area networks. The cell-based fast-packet technology is suitable for delay-sensitive voice and video and could usurp the need for FDDI-2, the emerging fiber-based LAN aimed at handling isochronous traffic (traffic dependent on timing). Cabletron Systems said it plans to make an ATM announcement within two months. Chipcom is also working in the ATM area but declined comment.

Big Blue waffle

► IBM may drop plans to release its first U.S. notebook computer on Feb. 25 as part of a major PC announcement. Sources said IBM is waging an internal battle over whether it has to release a notebook product now, even if it's subpar (for starters, it's based on the 16-MHz version of the 80386SX), or whether it should give the box another face-lift (the first came after it called off a late November '91 release) and debut it later. A new, undefined relationship with Zenith Data Systems is also a factor in the debate.

Technician's nightmare

► It was almost like test-driving a used car: An Intel demo of a new fax/modem chip set for portables at Networld '92 ran into some serious and embarrassing (for the demonstrator) problems. The chip set worked fine — once the machine had been reset, Windows had gone through an Unrecoverable Application Error and a game called "Lemmings" was removed from the engineer's hard drive to make room for the faxed image.

Net gain?

► Netframe, the superserver maker, promises a "where blue meets pink, and old and new worlds converge" in a product release expected tomorrow. On closer inspection, this means the company will introduce a card that runs Netware and will later support OS/2 and Unix, sources said.

Modular moves

► Add Librex to the growing category of notebook vendors that feature modularity. The company will soon announce an upgradable notebook based on Intel's SL chip, with an expected ship date of May 1st.

When Wang starts shipping IBM's RS/6000 in third-quarter 1992, sales reps will market the line as a server and recommend Wang- and IBM-made PCs as clients. Wang, however, will tout Microsoft's ever-popular Windows over OS/2, according to Joe Tucci, who manages Wang's alliance with IBM. Wang will also introduce a board-level upgrade for high-end proprietary VS 10000 minicomputers this quarter as part of a 30-product rollout. The VS 12000 will be 1½ times faster and able to support double the number of users — up to 128 — as the 10000. However, the RS/6000 — not the VS or the AS/400 — is "our strategic platform," Tucci said. Computerworld's strategic platform is news. Phone, fax or Compuserve news tips to News Editor Alan Alper at (800) 343-6474, (508) 875-8931 or 76537,2413, respectively.

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